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<?xml version="1.0" encoding="utf-8"?>
<xss: schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:S100="http://www.ih0.int/s100gml/1.0"
  xmlns:gml="http://www.opengis.net/gml/3.2" xmlns:clsa="http://reference.niem.gov/niem/specification/code-
  lists/1.0/code-lists-schema-appinfo/" xmlns="http://www.ih0.int/S412/gml/1.0" targetNamespace="http://
  www.ih0.int/S412/gml/1.0" elementFormDefault="unqualified" version="0.1.0">

<!-- ===== -->
<!-- S100 XML/GML Schema for S-412 (Weather Overlay) -->
<!-- ===== -->

<!-- =====
Certain parts of this document refer to or are based on the standards, documents, schemas, or other
material
of the International Organization for Standardization (ISO), Open Geospatial Consortium (OGC),
International
Hydrographic Organization / Organisation Hydrographique Internationale (IHO/OHI), World Meteorological
Organization (WMO), National Weather Service/Ocean Prediction Center (NWS/OPC).
The ISO material can be obtained from any ISO member and from the Web site of the ISO Central Secretariat
at www.iso.org.
The OGC material can be obtained from the OGC Web site at www.opengeospatial.org.
The IHO material can be obtained from the IHO Web site at www.ih0.int or from the International
Hydrographic
Bureau.
The WMO material can be obtained from the WMO Web site at www.wmo.int or from the URLs listed below.

Document history
Version 0.1.0 February 2017 Greg Seroka (IMSG for NWS/OPC) Initial version
Version 0.1.1 February 2017 Greg Seroka (IMSG for NWS/OPC) Some corrections for xmllint validation
-->

<xss:annotation>
  <xss:documentation>Application schema for S412 weather overlay dataset</xss:documentation>
</xss:annotation>

<!-->
<xss:include schemaLocation="s100gmlbase.xsd"/>
<xss:include schemaLocation=".S100_gmlProfile.xsd"/>
<xss:include schemaLocation="S100_gmlProfileLevels.xsd"/>
<!-->
<xss:import namespace="http://www.ih0.int/s100gml/1.0" schemaLocation="s100gmlbase.xsd"/>
<xss:import namespace="http://www.opengis.net/gml/3.2" schemaLocation=".S100_gmlProfile.xsd"/>
<xss:import namespace="http://www.ih0.int/S-100/profile/s100_gmlProfile"
schemaLocation="S100_gmlProfileLevels.xsd"/>

<!-- ===== -->
<!-- Common Types -->
<!-- ===== -->
<xss:simpleType name="IS0639-3">
  <xss:annotation>
    <xss:documentation>stub for ISO 639-3 language codes</xss:documentation>
  </xss:annotation>
  <xss:restriction base="xs:string">
    <xss:pattern value="\w{3}"/>
  </xss:restriction>
</xss:simpleType>

<!-- ===== -->
<!-- ===== -->

<!-- ===== -->
<!-- Spatial Property Convenience Types-->
<!-- ===== -->
<xss:complexType name="PointOrCurve">
  <xss:choice>
    <xss:element ref="S100:pointProperty"/>
    <xss:element ref="S100:curveProperty"/>
  </xss:choice>

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</xs:complexType>

<xs:complexType name="PointOrSurface">
<xs:choice>
    <xs:element ref="S100:pointProperty"/>
    <xs:element ref="S100:surfaceProperty"/>
</xs:choice>
</xs:complexType>

<xs:complexType name="CurveOrSurface">
<xs:choice>
    <xs:element ref="S100:curveProperty"/>
    <xs:element ref="S100:surfaceProperty"/>
</xs:choice>
</xs:complexType>

<xs:complexType name="PointCurveSurface">
<xs:choice>
    <xs:element ref="S100:pointProperty"/>
    <xs:element ref="S100:curveProperty"/>
    <xs:element ref="S100:surfaceProperty"/>
</xs:choice>
</xs:complexType>

<xs:complexType name="GM_Point">
<xs:choice>
    <xs:element ref="S100:pointProperty"/>
</xs:choice>
</xs:complexType>

<xs:complexType name="GM_Curve">
<xs:choice>
    <xs:element ref="S100:curveProperty"/>
</xs:choice>
</xs:complexType>

<xs:complexType name="GM_Surface">
<xs:choice>
    <xs:element ref="S100:surfaceProperty"/>
</xs:choice>
</xs:complexType>

<!-- ===== -->
<!-- ===== -->

<!-- ===== -->
<!-- Weather Common Feature Type -->
<!-- ===== -->

<xs:element name="FeatureType" type="FeatureType" abstract="true"
substitutionGroup="gml:AbstractFeature"/>
<xs:annotation>
    <xs:documentation>Generalized feature type which carries all the common attributes. Substitution
group head for features.</xs:documentation>
</xs:annotation>
<xs:complexType name="FeatureType" abstract="true">
    <xs:complexContent>
        <xs:extension base="S100:AbstractFeatureType">
            <xs:sequence>
                <xs:element name="scaleMaximum" type="xs:positiveInteger" minOccurs="1" maxOccurs="1"/>
                <xs:element name="scaleMinimum" type="xs:positiveInteger" minOccurs="1" maxOccurs="1"/>
                <xs:element name="information" type="information" minOccurs="0" maxOccurs="unbounded"/>
                <xs:element name="textualDescription" type="textualDescription" minOccurs="0"
maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

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</xs:complexType>

<!-- ===== -->
<!-- ===== -->
<!-- ===== -->
<!-- Weather Attribute Listing for Features-->
<!-- ===== -->

<xs:element name="AirTemperature" type="AirTemperatureType" substitutionGroup="FeatureType"/>
<xs:complexType name="AirTemperatureType">
    <xs:annotation>
        <xs:documentation>Air Temperature</xs:documentation>
        <xs:documentation>Definition: The temperature indicated by a thermometer exposed to the air in a place sheltered from direct solar radiation. (WMO-No. 182, A1390)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="valueOfAirTemperature" type="decimalPointOneResOptNeg" minOccurs="1" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="AtmosphericPressure" type="AtmosphericPressureType" substitutionGroup="FeatureType"/>
<xs:complexType name="AtmosphericPressureType"> <!--Portrayal: Use AIRPSR.xml-->
    <xs:annotation>
        <xs:documentation>Atmospheric Pressure</xs:documentation>
        <xs:documentation>Definition: Pressure (force per unit area) exerted by the atmosphere on any surface by virtue of its weight; it is equivalent to the weight of a vertical column of air extending above a surface of unit area to the outer limit of the atmosphere. (WMO-No. 182, A2930)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="valueOfAtmosphericPressure" type="decimalPointOneRes" minOccurs="1" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="PointOrCurve" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="CentreOfHigh" type="CentreOfHighType" substitutionGroup="FeatureType"/>
<xs:complexType name="CentreOfHighType">
    <xs:annotation>
        <xs:documentation>Centre Of High</xs:documentation>
        <xs:documentation>Definition: Region of the atmosphere where the pressures are high relative to those in the surrounding region at the same level. Point of the highest pressure in the area of high pressure. (WMO-No. 182, A2090)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="valueOfAtmosphericPressure" type="decimalPointOneRes" minOccurs="1" maxOccurs="1"/>
                <xs:element name="expectedChangeInIntensity" type="expectedChangeInIntensity" minOccurs="0" maxOccurs="1"/>
                <xs:element name="expectedMovement" type="expectedMovement" minOccurs="0" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

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<xs:element name="geometry" type="GM_Point" minOccurs="1" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

<xs:element name="CentreOfLow" type="CentreOfLowType" substitutionGroup="FeatureType"/>
<xs:complexType name="CentreOfLowType"> <!--Portrayal: Dictated by categoryOfLow attribute (see Annex A encoding guide for more details)-->
    <xs:annotation>
        <xs:documentation>Centre Of Low</xs:documentation>
        <xs:documentation>Definition: Region of the atmosphere where the pressures are lower than those of the surrounding region at the same level. Point of the lowest pressure in the low pressure area. (WMO-No. 182, D0230)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="categoryOfLow" type="categoryOfLow" minOccurs="1" maxOccurs="1"/>
                <xs:element name="expectedChangeInIntensity" type="expectedChangeInIntensity" minOccurs="0" maxOccurs="1"/>
                <xs:element name="expectedMovement" type="expectedMovement" minOccurs="0" maxOccurs="1"/>
                <xs:element name="valueOfAtmosphericPressure" type="decimalPointOneRes" minOccurs="1" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="GM_Point" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="Cloud" type="CloudType" substitutionGroup="FeatureType"/>
<xs:complexType name="CloudType">
    <xs:annotation>
        <xs:documentation>Cloud</xs:documentation>
        <xs:documentation>Definition: A hydrometeor consisting of minute particles of liquid water or ice, or of both, suspended in the free air and usually not touching the ground. It may also include larger particles of liquid water or ice and non-aqueous liquid or solid particles such as those present in fumes, smoke and dust. (WMO-No. 182, C1450)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="heightOfCloudBase" type="heightOfCloudBase" minOccurs="0" maxOccurs="1"/>
                <xs:element name="totalCloudCover" type="totalCloudCover" minOccurs="1" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="CurveOrSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="ComplexSea" type="ComplexSeaType" substitutionGroup="FeatureType"/>
<xs:complexType name="ComplexSeaType">
    <xs:annotation>
        <xs:documentation>Complex Sea</xs:documentation>
        <xs:documentation>Definition: Area where the direction of the significant waves opposes the surface current, causing steep and erratic wave conditions.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="areaOfComplexSea" type="xs:boolean" minOccurs="1" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="GM_Surface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

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    </xs:complexContent>
</xs:complexType>

<xs:element name="ConvergentBoundary" type="ConvergentBoundaryType" substitutionGroup="FeatureType"/>
<xs:complexType name="ConvergentBoundaryType">
    <xs:annotation>
        <xs:documentation>Convergent Boundary</xs:documentation>
        <xs:documentation>Definition: The interface or transition zone between air masses of similar densities (temperature, humidity).</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="categoryOfConvergentBoundary" type="categoryOfConvergentBoundary" minOccurs="1" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="GM_Curve" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="DewPointTemperature" type="DewPointTemperatureType" substitutionGroup="FeatureType"/>
<xs:complexType name="DewPointTemperatureType">
    <xs:annotation>
        <xs:documentation>Dew-Point Temperature</xs:documentation>
        <xs:documentation>Definition: Temperature to which a volume of air must be cooled at constant pressure and constant moisture in order to reach saturation; any further cooling causes condensation (WMO-No. 182, D0420)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="valueOfDewPointTemperature" type="decimalPointOneRes0ptNeg" minOccurs="1" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="FreezingSpray" type="FreezingSprayType" substitutionGroup="FeatureType"/>
<xs:complexType name="FreezingSprayType">
    <xs:annotation>
        <xs:documentation>Freezing Spray</xs:documentation>
        <xs:documentation>Definition: Sea spray transported through the air at temperatures below 0° C. (WMO-No. 182, F1170)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="icingIntensity" type="icingIntensity" minOccurs="1" maxOccurs="1"/>
                <xs:element name="areaOfFreezingSpray" type="xs:boolean" minOccurs="1" maxOccurs="1"/> <!-- Portrayal: will display all icingIntensity values-->
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="Front" type="FrontType" substitutionGroup="FeatureType"/>
<xs:complexType name="FrontType">
    <xs:annotation>
        <xs:documentation>Front</xs:documentation>
    </xs:annotation>

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<xs:documentation>Definition: The interface or transition zone between air masses of different densities (temperature, humidity). (WMO-No. 182, F1290 (1))</xs:documentation>
</xs:annotation>
<xs:complexContent>
<xs:extension base="FeatureType">
    <xs:sequence>
        <xs:element name="categoryOfFront" type="categoryOfFront" minOccurs="1" maxOccurs="1"/>
        <xs:element name="frontalDevelopment" type="frontalDevelopment" minOccurs="0" maxOccurs="1"/>
        <xs:element name="levelOfFront" type="levelOfFront" minOccurs="0" maxOccurs="1"/>
        <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
        <xs:element name="geometry" type="GM_Curve" minOccurs="1" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

<xs:element name="Gust" type="GustType" substitutionGroup="FeatureType"/>
<xs:complexType name="GustType">
    <xs:annotation>
        <xs:documentation>Gust</xs:documentation>
        <xs:documentation>Definition: Sudden, brief increase in wind speed over its mean value (WMO-No.182, G0920)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="surfaceGustDirection" type="surfaceGustDirection" minOccurs="1" maxOccurs="1"/>
                <xs:element name="surfaceGustSpeed" type="surfaceGustSpeed" minOccurs="1" maxOccurs="1"/>
                <xs:element name="areaOfSquallyWeather" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
                <xs:element name="areaOfStrongWinds6And7Beaufort" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
            </xs:sequence>
            <!--Portrayal: populate both beaufortForce values for force 6 and 7-->
            <xs:element name="probabilityOfSpeedExceeding" type="probabilityOfSpeedExceeding" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="windWarningProbability" type="windWarningProbability" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
            <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
        </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="Isoheight" type="IsoheightType" substitutionGroup="FeatureType"/>
<xs:complexType name="IsoheightType">
    <xs:annotation>
        <xs:documentation>Isoheight</xs:documentation>
        <xs:documentation>Definition: Line joining points of equal geopotential height on a particular surface, generally an isobaric surface. (WMO-No. 182, I1380)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="heightContour" type="heightContour" minOccurs="1" maxOccurs="unbounded"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="GM_Curve" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="LowWaterLevel" type="LowWaterLevelType" substitutionGroup="FeatureType"/>
<xs:complexType name="LowWaterLevelType">
    <xs:annotation>
        <xs:documentation>Low Water Level</xs:documentation>
        <xs:documentation>Definition: The difference between the actual water level under the influence of a meteorological disturbance and the level which would have been attained in the absence of the</xs:documentation>
    </xs:annotation>

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meteorological disturbance (i.e. astronomical tide) resulting in water level values lower than the tidal datum and posing a hazard to navigation. (WMO-No. 182, S2960). Remarks: All values will be negative, indicating water levels lower than the indicated datum.

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</xs:annotation>
<xs:complexContent>
<xs:extension base="FeatureType">
    <xs:sequence>
        <xs:element name="lowWaterLevel" type="lowWaterLevel" minOccurs="1" maxOccurs="1"/>
        <xs:element name="verticalDatum" type="verticalDatum" minOccurs="1" maxOccurs="1"/>
        <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
        <xs:element name="geometry" type="GM_Surface" minOccurs="1" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

<xs:element name="MaximumAirTemperature" type="MaximumAirTemperatureType"
substitutionGroup="FeatureType"/>
<xs:complexType name="MaximumAirTemperatureType">
    <xs:annotation>
        <xs:documentation>Maximum Air Temperature</xs:documentation>
        <xs:documentation>Definition: The highest temperature indicated by a thermometer exposed to the air in a place sheltered from direct solar radiation. (WMO-No. 182, A1390)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="valueOfAirTemperature" type="decimalPointOneResOptNeg" minOccurs="1"
maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="MaximumDewPointTemperature" type="MaximumDewPointTemperatureType"
substitutionGroup="FeatureType"/>
<xs:complexType name="MaximumDewPointTemperatureType">
    <xs:annotation>
        <xs:documentation>Maximum Dew-Point Temperature</xs:documentation>
        <xs:documentation>Definition: Highest temperature value to which a volume of air must be cooled at constant pressure and constant moisture in order to reach saturation; any further cooling causes condensation. (WMO-No. 182, D0420)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="valueOfDewPointTemperature" type="decimalPointOneResOptNeg" minOccurs="1"
maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="MaximumSeaSurfaceTemperature" type="MaximumSeaSurfaceTemperatureType"
substitutionGroup="FeatureType"/>
<xs:complexType name="MaximumSeaSurfaceTemperatureType">
    <xs:annotation>
        <xs:documentation>Maximum Sea Surface Temperature</xs:documentation>
        <xs:documentation>Definition: Highest temperature of the surface layer of a body of water. (WMO-
No. 182, S3830)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">

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<xs:sequence>
  <xs:element name="valueOfSeaSurfaceTemperature" type="decimalPointOneResOptNeg"
minOccurs="1" maxOccurs="1"/>
  <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
  <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

<xs:element name="Metarea" type="MetareaType" substitutionGroup="FeatureType"/>
<xs:complexType name="MetareaType">
  <xs:annotation>
    <xs:documentation>Metarea</xs:documentation>
    <xs:documentation>Definition: The number designating a geographical sea area established for the purpose of coordinating the broadcast of marine meteorological information (IMO A 27/Res. 1051, 2.8, December 2011)</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="FeatureType">
      <xs:sequence>
        <xs:element name="metareaNumber" type="metareaNumber" minOccurs="1" maxOccurs="1"/>
        <xs:element name="geometry" type="GM_Surface" minOccurs="1" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

<xs:element name="MinimumAirTemperature" type="MinimumAirTemperatureType"
substitutionGroup="FeatureType"/>
<xs:complexType name="MinimumAirTemperatureType">
  <xs:annotation>
    <xs:documentation>Minimum Air Temperature</xs:documentation>
    <xs:documentation>Definition: The lowest temperature value indicated by a thermometer exposed to the air in a place sheltered from direct solar radiation. (WMO-No. 182, A1390)</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="FeatureType">
      <xs:sequence>
        <xs:element name="valueOfAirTemperature" type="decimalPointOneResOptNeg" minOccurs="1"
maxOccurs="1"/>
        <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
        <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

<xs:element name="MinimumDewPointTemperature" type="MinimumDewPointTemperatureType"
substitutionGroup="FeatureType"/>
<xs:complexType name="MinimumDewPointTemperatureType">
  <xs:annotation>
    <xs:documentation>Minimum Dew-Point Temperature</xs:documentation>
    <xs:documentation>Definition: Lowest temperature value to which a volume of air must be cooled at constant pressure and constant moisture in order to reach saturation; any further cooling causes condensation. (WMO-No. 182, D0420)</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="FeatureType">
      <xs:sequence>
        <xs:element name="valueOfDewPointTemperature" type="decimalPointOneResOptNeg" minOccurs="1"
maxOccurs="1"/>
        <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
        <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

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</xs:complexType>

<xs:element name="MinimumSeaSurfaceTemperature" type="MinimumSeaSurfaceTemperatureType"
substitutionGroup="FeatureType"/>
<xs:complexType name="MinimumSeaSurfaceTemperatureType">
  <xs:annotation>
    <xs:documentation>Minimum Sea Surface Temperature</xs:documentation>
    <xs:documentation>Definition: Lowest temperature value of the surface layer of a body of water.
(WMO-No. 182, S3830)</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="FeatureType">
      <xs:sequence>
        <xs:element name="valueOfSeaSurfaceTemperature" type="decimalPointOneResOptNeg"
minOccurs="1" maxOccurs="1"/>
        <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
        <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

<xs:element name="Observation" type="ObservationType" substitutionGroup="FeatureType"/>
<xs:complexType name="ObservationType">
  <xs:annotation>
    <xs:documentation>Observation</xs:documentation>
    <xs:documentation>Definition: Evaluation of one or more meteorological elements. (WMO-No. 182,
00040)</xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:extension base="FeatureType">
      <xs:sequence>
        <xs:element name="categoryOfSurfaceVisibility" type="categoryOfSurfaceVisibility" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="horizontalVisibilityRange" type="horizontalVisibilityRange" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="icingIntensity" type="icingIntensity" minOccurs="0" maxOccurs="1"/>
        <xs:element name="valueOfAirTemperature" type="decimalPointOneResOptNeg" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="valueOfDewPointTemperature" type="decimalPointOneResOptNeg" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="surfaceGustDirection" type="surfaceGustDirection" minOccurs="0" maxOccurs="1"/>
        <xs:element name="surfaceGustSpeed" type="surfaceGustSpeed" minOccurs="0" maxOccurs="1"/>
        <xs:element name="atmosphericPressureObservation" type="atmosphericPressureObservation"
minOccurs="0" maxOccurs="1"/>
        <xs:element name="valueOfSeaSurfaceTemperature" type="decimalPointOneResOptNeg" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="surfaceWindDirectionObservation" type="surfaceWindDirectionObservation"
minOccurs="0" maxOccurs="1"/>
        <xs:element name="surfaceWindSpeed" type="surfaceWindSpeed" minOccurs="0" maxOccurs="1"/>
        <xs:element name="primarySwellWavePeriod" type="xs:nonNegativeInteger" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="primarySwellWaveDirection" type="primarySwellWaveDirection" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="primarySwellWaveHeight" type="primarySwellWaveHeight" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="secondarySwellWaveDirection" type="secondarySwellWaveDirection" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="secondarySwellWaveHeight" type="secondarySwellWaveHeight" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="secondarySwellWavePeriod" type="xs:nonNegativeInteger" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="significantWavePeriod" type="xs:nonNegativeInteger" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="significantWaveDirection" type="significantWaveDirection" minOccurs="0"
maxOccurs="1"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

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<xs:element name="significantWaveHeight" type="significantWaveHeight" minOccurs="0"
maxOccurs="1"/>
    <xs:element name="windWaveDirection" type="windWaveDirection" minOccurs="0" maxOccurs="1"/>
    <xs:element name="windWaveHeight" type="windWaveHeight" minOccurs="0" maxOccurs="1"/>
    <xs:element name="windWavePeriod" type="xs:nonNegativeInteger" minOccurs="0" maxOccurs="1"/>
    <xs:element name="observationInformation" type="observationInformation" minOccurs="1"
maxOccurs="1"/>
    <xs:element name="validTime" type="dateTimeNoSpaces" minOccurs="1" maxOccurs="1"/>
    <xs:element name="geometry" type="GM_Point" minOccurs="1" maxOccurs="unbounded"/>
        </xs:sequence>
    </xs:extension>
</xs:complexContent>
</xs:complexType>

<xs:element name="Precipitation" type="PrecipitationType" substitutionGroup="FeatureType"/>
<xs:complexType name="PrecipitationType">
    <xs:annotation>
        <xs:documentation>Precipitation</xs:documentation>
        <xs:documentation>Definition: Hydrometeor consisting of a fall of an ensemble of particles. (WMO-
No. 182, P1360)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="areaOfPrecipitation" type="areaOfPrecipitation" minOccurs="1" maxOccurs="1"/>
                <xs:element name="areaOfContinuousPrecipitation" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
                <xs:element name="areaOfHeavyShowers" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
                <xs:element name="areaOfSnow" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
                <xs:element name="areaOfFreezingPrecipitation" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="GM_Surface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="PressureTendency" type="PressureTendencyType" substitutionGroup="FeatureType"/>
<xs:complexType name="PressureTendencyType">
    <xs:annotation>
        <xs:documentation>Pressure Tendency</xs:documentation>
        <xs:documentation>Definition: Character and amount of a station pressure change over three hours
(over 24 hours in tropical regions). (WMO-No. 182, P1690)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="atmosphericPressureChange" type="atmosphericPressureChange" minOccurs="1"
maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="PrimarySwell" type="PrimarySwellType" substitutionGroup="FeatureType"/>
<xs:complexType name="PrimarySwellType">
    <xs:annotation>
        <xs:documentation>Primary Swell</xs:documentation>
        <xs:documentation>Definition: The dominant wave system of water waves which has left its
generating area. (WMO-No.182, S3900)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="primarySwellWavePeriod" type="xs:nonNegativeInteger" minOccurs="1"
maxOccurs="1"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

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<xs:element name="primarySwellWaveDirection" type="primarySwellWaveDirection" minOccurs="1"
maxOccurs="1"/>
    <xs:element name="areaOfHeavySwell" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
    <xs:element name="primarySwellWaveHeight" type="primarySwellWaveHeight" minOccurs="1"
maxOccurs="1"/>
        <xs:element name="primarySwellWaveHeightChange" type="primarySwellWaveHeightChange"
minOccurs="0" maxOccurs="1"/>
        <xs:element name="primarySwellWavePeriodChange" type="primarySwellWavePeriodChange"
minOccurs="0" maxOccurs="1"/>
        <xs:element name="probabilityOfHeightsExceeding" type="probabilityOfHeightsExceeding"
minOccurs="0" maxOccurs="unbounded"/>
        <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
        <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="Ridge" type="RidgeType" substitutionGroup="FeatureType"/>
<xs:complexType name="RidgeType">
    <xs:annotation>
        <xs:documentation>Ridge</xs:documentation>
        <xs:documentation>Definition: Region of the atmosphere in which the pressure is high relative to
the surrounding region at the same level. It is represented on a synoptic chart by a system of nearly
parallel isobars or contours, approximately U-shape, which are concave towards an anticyclone. A ridge
line is where the curvature of the isobars or contours is maximum. (WMO-No. 182, R1790)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="expectedChangeInIntensity" type="expectedChangeInIntensity" minOccurs="0"
maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="GM_Curve" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="SeaSurfaceTemperature" type="SeaSurfaceTemperatureType"
substitutionGroup="FeatureType"/>
<xs:complexType name="SeaSurfaceTemperatureType">
    <xs:annotation>
        <xs:documentation>Sea Surface Temperature</xs:documentation>
        <xs:documentation>Definition: Temperature of the surface layer of a body of water. (WMO-No. 182,
S3830)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="valueOfSeaSurfaceTemperature" type="decimalPointOneRes0ptNeg" minOccurs="1"
maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="SecondarySwell" type="SecondarySwellType" substitutionGroup="FeatureType"/>
<xs:complexType name="SecondarySwellType"> <!--Feature can only exist if PrimarySwell exists-->
    <xs:annotation>
        <xs:documentation>Secondary Swell</xs:documentation>
        <xs:documentation>Definition: The less dominate wave system of water waves which has left its
generating area. (WMO-No.182, S3900)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>

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<xs:extension base="FeatureType">
    <xs:sequence>
        <xs:element name="secondarySwellWavePeriod" type="xs:nonNegativeInteger" minOccurs="1"
maxOccurs="1"/>
        <xs:element name="secondarySwellWaveDirection" type="secondarySwellWaveDirection" minOccurs="1"
maxOccurs="1"/>
        <xs:element name="areaOfHeavySwell" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
        <xs:element name="secondarySwellWaveHeight" type="secondarySwellWaveHeight" minOccurs="1"
maxOccurs="1"/>
        <xs:element name="secondarySwellWaveHeightChange" type="secondarySwellWaveHeightChange"
minOccurs="0" maxOccurs="1"/>
        <xs:element name="secondarySwellWavePeriodChange" type="secondarySwellWavePeriodChange"
minOccurs="0" maxOccurs="1"/>
        <xs:element name="probabilityOfHeightsExceeding" type="probabilityOfHeightsExceeding"
minOccurs="0" maxOccurs="unbounded"/>
        <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
        <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

<xs:element name="SignificantWave" type="SignificantWaveType" substitutionGroup="FeatureType"/>
<xs:complexType name="SignificantWaveType">
    <xs:annotation>
        <xs:documentation>Significant Wave</xs:documentation>
        <xs:documentation>Definition: Average values of wave heights (combined swell and seas) from the
highest one third of waves. (WMO-No. 702, p 9)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="significantWavePeriod" type="xs:nonNegativeInteger" minOccurs="1"
maxOccurs="1"/>
                <xs:element name="significantWaveDirection" type="significantWaveDirection" minOccurs="1"
maxOccurs="1"/>
                <xs:element name="significantWaveHeight" type="significantWaveHeight" minOccurs="1"
maxOccurs="1"/>
                <xs:element name="significantWaveHeightChange" type="significantWaveHeightChange" minOccurs="0"
maxOccurs="1"/>
                <xs:element name="significantWavePeriodChange" type="significantWavePeriodChange" minOccurs="0"
maxOccurs="1"/>
                <xs:element name="probabilityOfHeightsExceeding" type="probabilityOfHeightsExceeding"
minOccurs="0" maxOccurs="unbounded"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="StormSurge" type="StormSurgeType" substitutionGroup="FeatureType"/>
<xs:complexType name="StormSurgeType">
    <xs:annotation>
        <xs:documentation>Storm Surge</xs:documentation>
        <xs:documentation>Definition: The difference between the actual water level under the influence
of a meteorological disturbance (storm tide) and the level which would have been attained in the absence
of the meteorological disturbance (i.e. astronomical tide). (WMO-No 182, S2960)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="stormSurgeHeight" type="stormSurgeHeight" minOccurs="1" maxOccurs="1"/>
                <xs:element name="verticalDatum" type="verticalDatum" minOccurs="1" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

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        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="SurfaceVisibility" type="SurfaceVisibilityType" substitutionGroup="FeatureType"/>
<xs:complexType name="SurfaceVisibilityType">
    <xs:annotation>
        <xs:documentation>Surface Visibility</xs:documentation>
        <xs:documentation>Definition: Greatest distance at which a black object of suitable dimensions can be seen and recognized against the horizon sky during daylight or could be seen and recognized during the night if the general illumination were raised to the normal daylight level. (WMO-No. 182, V0390)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="categoryOfSurfaceVisibility" type="categoryOfSurfaceVisibility" minOccurs="0" maxOccurs="1"/>
                <xs:element name="areaOfReducedVisibility" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
                <xs:element name="areaOfFog" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
                <xs:element name="horizontalVisibilityRange" type="horizontalVisibilityRange" minOccurs="1" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="SurfaceWind" type="SurfaceWindType" substitutionGroup="FeatureType"/>
<xs:complexType name="SurfaceWindType">
    <xs:annotation>
        <xs:documentation>Surface Wind</xs:documentation>
        <xs:documentation>Definition: Wind blowing near the Earth's surface. It is measured, by convention, at a height of 10 m above ground in an area where the distance between the anemometer and any obstruction is at least 10 times the height of the obstruction. (WMO-No. 182, S3850)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="surfaceWindDirection" type="surfaceWindDirection" minOccurs="1" maxOccurs="1"/>
                <xs:element name="surfaceWindDirectionChange" type="surfaceWindDirectionChange" minOccurs="0" maxOccurs="1"/>
                <xs:element name="surfaceWindSpeed" type="surfaceWindSpeed" minOccurs="1" maxOccurs="1"/>
                <xs:element name="areaOfStrongWinds6And7Beaufort" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
                <xs:element name="areaOfGales" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
                <xs:element name="areaOfSquallyWeather" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
                <xs:element name="surfaceWindSpeedChange" type="surfaceWindSpeedChange" minOccurs="0" maxOccurs="1"/>
                <xs:element name="probabilityOfSpeedExceeding" type="probabilityOfSpeedExceeding" minOccurs="0" maxOccurs="unbounded"/>
                <xs:element name="windWarningProbability" type="windWarningProbability" minOccurs="0" maxOccurs="unbounded"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="Thickness" type="ThicknessType" substitutionGroup="FeatureType"/>
<xs:complexType name="ThicknessType">
    <xs:annotation>
        <xs:documentation>Thickness</xs:documentation>
        <xs:documentation>Definition: Vertical distance, measured in geometric or, usually, geopotential

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units between two isobaric surfaces (WMO-No. 182, T0820) </xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="lowerIsobaricLevel" type="lowerIsobaricLevel" minOccurs="1" maxOccurs="1"/>
                <xs:element name="upperIsobaricLevel" type="upperIsobaricLevel" minOccurs="1" maxOccurs="1"/>
                <xs:element name="thicknessHeight" type="nonNegativeIntegerFourDigits10Res" minOccurs="1" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="GM_Curve" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="Thunderstorm" type="ThunderstormType" substitutionGroup="FeatureType"/>
<xs:complexType name="ThunderstormType">
    <xs:annotation>
        <xs:documentation>Thunderstorm</xs:documentation>
        <xs:documentation>Definition: Sudden electrical discharges manifested by a flash of light (lightning) and a sharp or rumbling sound (thunder). Thunderstorms are associated with convective clouds (Cumulonimbus) and are, more often, accompanied by precipitation in the form of rain showers or hail, or occasionally snow, snow pellets, or ice pellets. (WMO-No. 182, T0940). Remark: If areaOfThunderstorms is false, no other information can be populated within Thunderstorm feature.</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="areaOfThunderstorms" type="areaOfThunderstorms" minOccurs="1" maxOccurs="1"/>
                <xs:element name="areaOfWaterSpouts" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="GM_Surface" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="TropicalCyclone" type="TropicalCycloneType" substitutionGroup="FeatureType"/>
<xs:complexType name="TropicalCycloneType">
    <xs:annotation>
        <xs:documentation>Tropical Cyclone</xs:documentation>
        <xs:documentation>Definition: Generic term for a non-frontal synoptic scale cyclone originating over tropical or sub-tropical waters with organized convection and definite cyclonic surface wind circulation. (WMO-No. 182, T1510)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="FeatureType">
            <xs:sequence>
                <xs:element name="windSpeedRange" type="windSpeedRange" minOccurs="1" maxOccurs="1"/>
                <xs:element name="expectedChangeInIntensity" type="expectedChangeInIntensity" minOccurs="0" maxOccurs="1"/>
                <xs:element name="saffirSimpsonCategory" type="saffirSimpsonCategory" minOccurs="0" maxOccurs="1"/>
                <xs:element name="valueOfAtmosphericPressure" type="decimalPointOneRes" minOccurs="1" maxOccurs="1"/>
                <xs:element name="expectedMovement" type="expectedMovement" minOccurs="0" maxOccurs="1"/>
                <xs:element name="featureName" type="featureName" minOccurs="0" maxOccurs="1"/>
                <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
                <xs:element name="geometry" type="GM_Point" minOccurs="1" maxOccurs="unbounded"/>
            </xs:sequence>
        </xs:extension>
    </xs:complexContent>
</xs:complexType>

<xs:element name="Tsunami" type="TsunamiType" substitutionGroup="FeatureType"/>
<xs:complexType name="TsunamiType">

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<xs:annotation>
<xs:documentation>Tsunami</xs:documentation>
<xs:documentation>Definition: A series of travelling waves of extremely long length and period, generated by disturbances associated with earthquakes occurring below or near the ocean floor. (Also called seismic sea wave and, popularly, tidal wave.) An ocean wave produced by a submarine earthquake, landslide or volcanic eruption. (Tsunami Glossary 2013, Tech Series 85)</xs:documentation>
</xs:annotation>
<xs:complexContent>
<xs:extension base="FeatureType">
    <xs:sequence>
        <xs:element name="tsunamiWave" type="tsunamiWave" minOccurs="1" maxOccurs="1"/>
        <xs:element name="probabilityOfHeightsExceeding" type="probabilityOfHeightsExceeding" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element name="verticalDatum" type="verticalDatum" minOccurs="1" maxOccurs="1"/>
        <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
        <xs:element name="geometry" type="CurveOrSurface" minOccurs="1" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

<xs:element name="WatchWarning" type="WatchWarningType" substitutionGroup="FeatureType"/>
<xs:complexType name="WatchWarningType">
    <xs:annotation>
        <xs:documentation>Watch/Warning</xs:documentation>
        <xs:documentation>Definition: A notification issued to warn mariners about conditions that could affect the safety of life and property at sea. (WMO-No. 182, S2970). Remark: Information attribute should be populated with the warning headline, with the phrase "See Textual Description for additional information."</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
<xs:extension base="FeatureType">
    <xs:sequence>
        <xs:element name="watchWarning" type="watchWarning" minOccurs="1" maxOccurs="1"/>
        <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
        <xs:element name="geometry" type="GM_Surface" minOccurs="1" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

<xs:element name="WindWave" type="WindWaveType" substitutionGroup="FeatureType"/>
<xs:complexType name="WindWaveType">
    <xs:annotation>
        <xs:documentation>Wind Wave</xs:documentation>
        <xs:documentation>Definition: A wave resulting from the action of wind on a water surface. (IHO Hydrographic Dictionary, 5926)</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
<xs:extension base="FeatureType">
    <xs:sequence>
        <xs:element name="windWavePeriod" type="xs:nonNegativeInteger" minOccurs="0" maxOccurs="1"/>
        <xs:element name="windWaveDirection" type="windWaveDirection" minOccurs="1" maxOccurs="1"/>
        <xs:element name="windWaveHeight" type="windWaveHeight" minOccurs="1" maxOccurs="1"/>
        <xs:element name="windWaveHeightChange" type="windWaveHeightChange" minOccurs="0" maxOccurs="1"/>
        <xs:element name="windWavePeriodChange" type="windWavePeriodChange" minOccurs="0" maxOccurs="1"/>
        <xs:element name="probabilityOfHeightsExceeding" type="probabilityOfHeightsExceeding" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element name="time" type="time" minOccurs="1" maxOccurs="1"/>
        <xs:element name="geometry" type="PointCurveSurface" minOccurs="1" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

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<! --- ===== --->
<! --- ===== --->

<! --- ===== --->
<! --- Weather Sub-Attribute Listing for Complex Attributes --->
<! --- ===== --->

<xs:complexType name="areaOfPrecipitation">
  <xs:annotation>
    <xs:documentation>Area Of Precipitation</xs:documentation>
    <xs:documentation>Definition: An area where precipitation is falling.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="categoryOfPrecipitation" type="categoryOfPrecipitation" minOccurs="1"
maxOccurs="unbounded"/>
    <xs:element name="coverage" type="coverage" minOccurs="0" maxOccurs="1"/>
    <xs:element name="precipitationRate" type="precipitationRate" minOccurs="0" maxOccurs="unbounded"/>
    <xs:element name="probabilityPercentage" type="percent" minOccurs="0" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="areaOfThunderstorms">
  <xs:annotation>
    <xs:documentation>Area Of Thunderstorms</xs:documentation>
    <xs:documentation>Definition: Area of weather characterized by sudden electrical discharges manifested by a blast of light (lightning) and a sharp or rumbling sound (thunder). Thunderstorms are associated with convective clouds (cumulonimbus) and are, more often, accompanied by precipitation in the form of rain showers or hail, or occasionally snow, snow pellets, or ice pellets.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="coverage" type="coverage" minOccurs="0" maxOccurs="1"/>
    <xs:element name="thunderstormRiskCategory" type="thunderstormRiskCategory" minOccurs="0"
maxOccurs="1"/>
    <xs:element name="precipitationRate" type="precipitationRate" minOccurs="0" maxOccurs="1"/>
    <xs:element name="categoryOfPrecipitation" type="categoryOfPrecipitation" minOccurs="0"
maxOccurs="unbounded"/>
    <xs:element name="probabilityPercentage" type="percent" minOccurs="0" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="atmosphericPressureChange">
  <xs:annotation>
    <xs:documentation>Atmospheric Pressure Change</xs:documentation>
    <xs:documentation>Definition: Indication and characteristic of atmospheric pressure changes.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="amountOfAtmosphericPressureChange" type="decimalPointOneResOptNeg" minOccurs="1"
maxOccurs="1"/>
    <xs:element name="characteristicOfPressureChange" type="characteristicOfPressureChange"
minOccurs="1" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="atmosphericPressureObservation">
  <xs:annotation>
    <xs:documentation>Atmospheric Pressure Observation</xs:documentation>
    <xs:documentation>Definition: Complex attribute that indicates atmospheric pressure observation information, including the amount of atmospheric pressure change, characteristic of pressure change and value of atmospheric pressure.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="amountOfAtmosphericPressureChange" type="decimalPointOneResOptNeg" minOccurs="0"
maxOccurs="1"/>
    <xs:element name="characteristicOfPressureChange" type="characteristicOfPressureChange"
minOccurs="0" maxOccurs="1"/> <!--Must be populated if amountOfAtmosphericPressureChange is populated-->
    <xs:element name="valueOfAtmosphericPressure" type="decimalPointOneRes" minOccurs="1"
  </xs:sequence>
</xs:complexType>

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maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="expectedMovement">
  <xs:annotation>
    <xs:documentation>Expected Movement</xs:documentation>
    <xs:documentation>Definition: Indicates the speed and directional characteristics of an organized meteorological system.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="speedOfExpectedMovement" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
    <xs:element name="directionOfExpectedMovement" type="directionOfExpectedMovement" minOccurs="1" maxOccurs="1"/>
    <xs:element name="speedUnits" type="speedUnits" minOccurs="1" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="featureName">
  <xs:annotation>
    <xs:documentation>Feature Name</xs:documentation>
    <xs:documentation>Definition: The complex attribute provides the name of an entity, defines the national language of the name, and provides the option to display the name at various system display settings. Remark: Object name should be populated with official WMO tropical cyclone name.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="displayName" type="xs:boolean" minOccurs="1" maxOccurs="1"/>
    <xs:element name="language" type="ISO639-3" minOccurs="0" maxOccurs="1"/>
    <xs:element name="objectName" type="xs:string" minOccurs="1" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="heightContour">
  <xs:annotation>
    <xs:documentation>Height Contour</xs:documentation>
    <xs:documentation>Definition: Altitude of geopotential height contour.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="distanceOfUnitMeasurement" type="distanceOfUnitMeasurement" minOccurs="1" maxOccurs="1"/>
    <xs:element name="valueOfHeightContour" type="xs:positiveInteger" minOccurs="1" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="horizontalVisibilityRange">
  <xs:annotation>
    <xs:documentation>Horizontal Visibility Range</xs:documentation>
    <xs:documentation>Definition: Greatest distance expressed numerically that a black object of suitable dimensions can be seen and recognized against the horizon sky during daylight or could be seen and recognized during the night if the general illumination were raised to the normal daylight level.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="visibilityRange" type="decimalPointOneRes" minOccurs="1" maxOccurs="1"/>
    <xs:element name="distanceOfUnitMeasurement" type="distanceOfUnitMeasurement" minOccurs="1" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="information">
  <xs:annotation>
    <xs:documentation>Information</xs:documentation>
    <xs:documentation>Definition: Textual information about a feature. Remark: Information attribute is used by S-412 features to highlight high-impact or critical information associated with the feature.</xs:documentation>
  </xs:annotation>

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    </xs:annotation>
<xs:sequence>
    <xs:element name="language" type="ISO639-3" minOccurs="0" maxOccurs="1"/>
    <xs:element name="text" type="string300char" minOccurs="1" maxOccurs="1"/>
</xs:sequence>
</xs:complexType>

<xs:complexType name="levelOfFront">
    <xs:annotation>
        <xs:documentation>Level Of Front</xs:documentation>
        <xs:documentation>Definition: Indication of whether or not frontal system is located at or above the surface level.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="frontLevel" type="frontLevel" minOccurs="1" maxOccurs="1"/>
        <xs:element name="valueOfAtmosphericPressure" type="decimalPointOneRes" minOccurs="0" maxOccurs="1"/> <!--May only be populated if and only if frontLevel= 2: Above Surface Front-->
    </xs:sequence>
</xs:complexType>

<xs:complexType name="lowWaterLevel">
    <xs:annotation>
        <xs:documentation>Low Water Level</xs:documentation>
        <xs:documentation>Definition: The vertical difference between the tidal datum and the forecast negative low water level.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="lowWaterLevelValue" type="decimalPointOneResNeg" minOccurs="1" maxOccurs="1"/>
        <xs:element name="heightLengthUnits" type="heightLengthUnits" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="observationInformation">
    <xs:annotation>
        <xs:documentation>Observation Information</xs:documentation>
        <xs:documentation>Definition: Metadata supporting a weather observation.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="weatherObservationSource" type="weatherObservationSource" minOccurs="1" maxOccurs="1"/>
        <xs:element name="source" type="xs:string" minOccurs="1" maxOccurs="1"/>
        <xs:element name="status" type="status" minOccurs="1" maxOccurs="unbounded"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="primarySwellWaveDirection">
    <xs:annotation>
        <xs:documentation>Primary Swell Wave Direction</xs:documentation>
        <xs:documentation>Definition: Directional component of primary swell in degrees and cardinal directions.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="azimuthDegreesOfWaveDirection" type="nonNegativeInteger359" minOccurs="1" maxOccurs="1"/>
        <xs:element name="waveDirectionCompassPoint" type="waveDirectionCompassPoint" minOccurs="0" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="primarySwellWaveHeight">
    <xs:annotation>
        <xs:documentation>Primary Swell Wave Height</xs:documentation>
        <xs:documentation>Definition: Height component of primary swell waves.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="categoryOfSwellWaveHeight" type="categoryOfSwellWaveHeight" minOccurs="0" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

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<xs:element name="heightLengthUnits" type="heightLengthUnits" minOccurs="1" maxOccurs="1"/>
<xs:element name="waveHeight" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
</xs:sequence>
</xs:complexType>

<xs:complexType name="primarySwellWaveHeightChange">
    <xs:annotation>
        <xs:documentation>Primary Swell Wave Height Change</xs:documentation>
        <xs:documentation>Definition: Change in swell wave height over a given time interval.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="changeInWaveHeight" type="changeInWaveHeight" minOccurs="1" maxOccurs="1"/>
        <xs:element name="waveHeightChangeTimeInterval" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="primarySwellWavePeriodChange">
    <xs:annotation>
        <xs:documentation>Primary Swell Wave Period Change</xs:documentation>
        <xs:documentation>Definition: Primary swell wave period change for a given time interval.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="changeInWavePeriod" type="changeInWavePeriod" minOccurs="1" maxOccurs="1"/>
        <xs:element name="wavePeriodChangeTimeInterval" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="probabilityOfHeightsExceeding">
    <xs:annotation>
        <xs:documentation>Probability Of Heights Exceeding</xs:documentation>
        <xs:documentation>Definition: Wave height attributes that indicate the probability of wave heights (significant wave, wind waves, swell waves) exceeding a specified threshold.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="probabilityThreshold" type="decimalPointOneRes" minOccurs="1" maxOccurs="1"/>
        <xs:element name="heightLengthUnits" type="heightLengthUnits" minOccurs="1" maxOccurs="1"/>
        <xs:element name="probabilityPercentage" type="percent" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="probabilityOfSpeedExceeding">
    <xs:annotation>
        <xs:documentation>Probability Of Speed Exceeding</xs:documentation>
        <xs:documentation>Definition: Wind Speed attributes that indicate the probability of wind speeds (gusts, surface wind) exceeding a specified threshold.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="probabilityThreshold" type="decimalPointOneRes" minOccurs="1" maxOccurs="1"/>
    <!--Remark: Cannot equal or exceed a value of hurricane force.-->
        <xs:element name="speedUnits" type="speedUnits" minOccurs="1" maxOccurs="1"/>
        <xs:element name="probabilityPercentage" type="percent" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="secondarySwellWaveDirection">
    <xs:annotation>
        <xs:documentation>Secondary Swell Wave Direction</xs:documentation>
        <xs:documentation>Definition: Directional component of secondary swell in degrees and cardinal directions.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="azimuthDegreesOfWaveDirection" type="nonNegativeInteger359" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

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<xs:element name="waveDirectionCompassPoint" type="waveDirectionCompassPoint" minOccurs="0"
maxOccurs="1"/>
</xs:sequence>
</xs:complexType>

<xs:complexType name="secondarySwellWaveHeight">
  <xs:annotation>
    <xs:documentation>Secondary Swell Wave Height</xs:documentation>
    <xs:documentation>Definition: Height component of secondary swell waves.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="categoryOfSwellWaveHeight" type="categoryOfSwellWaveHeight" minOccurs="0"
maxOccurs="1"/>
    <xs:element name="heightLengthUnits" type="heightLengthUnits" minOccurs="1" maxOccurs="1"/>
    <xs:element name="waveHeight" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="secondarySwellWaveHeightChange">
  <xs:annotation>
    <xs:documentation>Secondary Swell Wave Height Change</xs:documentation>
    <xs:documentation>Definition: Change in swell wave height over a given time interval.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="changeInWaveHeight" type="changeInWaveHeight" minOccurs="1" maxOccurs="1"/>
    <xs:element name="waveHeightChangeTimeInterval" type="xs:nonNegativeInteger" minOccurs="1"
maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="secondarySwellWavePeriodChange">
  <xs:annotation>
    <xs:documentation>Secondary Swell Wave Period Change</xs:documentation>
    <xs:documentation>Definition: Secondary swell wave period change for a given time interval.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="changeInWavePeriod" type="changeInWavePeriod" minOccurs="1" maxOccurs="1"/>
    <xs:element name="wavePeriodChangeTimeInterval" type="xs:nonNegativeInteger" minOccurs="1"
maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="significantWaveDirection">
  <xs:annotation>
    <xs:documentation>Significant Wave Direction</xs:documentation>
    <xs:documentation>Definition: Directional component of significant waves in degrees and cardinal
directions.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="azimuthDegreesOfWaveDirection" type="nonNegativeInteger359" minOccurs="1"
maxOccurs="1"/>
    <xs:element name="waveDirectionCompassPoint" type="waveDirectionCompassPoint" minOccurs="0"
maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="significantWaveHeight">
  <xs:annotation>
    <xs:documentation>Significant Wave Height</xs:documentation>
    <xs:documentation>Definition: Height component of significant waves.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="heightLengthUnits" type="heightLengthUnits" minOccurs="1" maxOccurs="1"/>
    <xs:element name="waveHeight" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
    <xs:element name="categoryOfWaveHeight" type="categoryOfWaveHeight" minOccurs="0" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

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    </xs:sequence>
</xs:complexType>

<xs:complexType name="significantWaveHeightChange">
    <xs:annotation>
        <xs:documentation>Significant Wave Height Change</xs:documentation>
        <xs:documentation>Definition: Change in wave height of significant waves for a given time interval.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="changeInWaveHeight" type="changeInWaveHeight" minOccurs="1" maxOccurs="1"/>
        <xs:element name="waveHeightChangeTimeInterval" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="significantWavePeriodChange">
    <xs:annotation>
        <xs:documentation>Significant Wave Period Change</xs:documentation>
        <xs:documentation>Definition: Significant wave period change for a given time interval.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="changeInWavePeriod" type="changeInWavePeriod" minOccurs="1" maxOccurs="1"/>
        <xs:element name="wavePeriodChangeTimeInterval" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="stormSurgeHeight">
    <xs:annotation>
        <xs:documentation>Storm Surge Height</xs:documentation>
        <xs:documentation>Definition: Height of the seas as a result of atmospheric pressure changes and wind associated with a storm.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="heightOfStormSurge" type="decimalPointFiveRes" minOccurs="1" maxOccurs="1"/>
        <xs:element name="heightLengthUnits" type="heightLengthUnits" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="surfaceGustDirection">
    <xs:annotation>
        <xs:documentation>Surface Gust Direction</xs:documentation>
        <xs:documentation>Definition: Directional component of gust wind vectors located at the surface.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="azimuthDegreesOfWindDirection" type="nonNegativeInteger359" minOccurs="1" maxOccurs="1"/>
        <xs:element name="windDirectionCompassPoint" type="windDirectionCompassPoint" minOccurs="0" maxOccurs="1"/>
        <xs:element name="windAveragePeriod" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="surfaceGustSpeed">
    <xs:annotation>
        <xs:documentation>Surface Gust Speed</xs:documentation>
        <xs:documentation>Definition: The speed component of gust wind vectors located at the surface.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="beaufortForce" type="beaufortForce" minOccurs="0" maxOccurs="1"/>
        <xs:element name="valueOfWindSpeed" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
        <xs:element name="speedUnits" type="speedUnits" minOccurs="1" maxOccurs="1"/>
        <xs:element name="windAveragePeriod" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

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    </xs:sequence>
</xs:complexType>

<xs:complexType name="surfaceWindDirection">
    <xs:annotation>
        <xs:documentation>Surface Wind Direction</xs:documentation>
        <xs:documentation>Definition: Directional component of surface wind vectors.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="azimuthDegreesOfWindDirection" type="nonNegativeInteger359" minOccurs="1"
maxOccurs="1"/>
        <xs:element name="windDirectionCompassPoint" type="windDirectionCompassPoint" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="windAveragePeriod" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="surfaceWindDirectionChange">
    <xs:annotation>
        <xs:documentation>Surface Wind Direction Change</xs:documentation>
        <xs:documentation>Definition: Directional change of surface wind vectors over a given time
interval.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="changeInWindDirection" type="changeInWindDirection" minOccurs="1" maxOccurs="1"/>
        <xs:element name="windChangeTimeInterval" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="surfaceWindDirectionObservation">
    <xs:annotation>
        <xs:documentation>Surface Wind Direction Observation</xs:documentation>
        <xs:documentation>Definition: Directional component of surface wind vectors.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="azimuthDegreesOfWindDirection" type="nonNegativeInteger359" minOccurs="1"
maxOccurs="1"/>
        <xs:element name="windDirectionCompassPoint" type="windDirectionCompassPoint" minOccurs="0"
maxOccurs="1"/>
        <xs:element name="changeInWindDirection" type="changeInWindDirection" minOccurs="0" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="surfaceWindSpeed">
    <xs:annotation>
        <xs:documentation>Surface Wind Speed</xs:documentation>
        <xs:documentation>Definition: Speed of surface wind vectors.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="beaufortForce" type="beaufortForce" minOccurs="0" maxOccurs="1"/>
        <xs:element name="valueOfWindSpeed" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
        <xs:element name="speedUnits" type="speedUnits" minOccurs="1" maxOccurs="1"/>
        <xs:element name="windAveragePeriod" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

<xs:complexType name="surfaceWindSpeedChange">
    <xs:annotation>
        <xs:documentation>Surface Wind Speed Change</xs:documentation>
        <xs:documentation>Definition: Change in wind speed for a given time interval.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="changeInWindSpeed" type="changeInWindSpeed" minOccurs="1" maxOccurs="1"/>
        <xs:element name="windChangeTimeInterval" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
    </xs:sequence>
</xs:complexType>

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</xs:complexType>

<xs:complexType name="textualDescription">
  <xs:annotation>
    <xs:documentation>Textual Description</xs:documentation>
    <xs:documentation>Definition: The complex attribute encodes the file name of a single external text file that contains the text in a defined language, which provides additional textual information that cannot be provided using other allowable attributes for the feature.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="fileReference" type="xs:string" minOccurs="1" maxOccurs="1"/>
    <xs:element name="language" type="ISO639-3" minOccurs="0" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="time">
  <xs:annotation>
    <xs:documentation>Time</xs:documentation>
    <xs:documentation>Definition: Indication of when a product is valid, scheduled to be updated next, and when it was issued.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="issueTime" type="dateTimeNoSpaces" minOccurs="0" maxOccurs="1"/>
    <xs:element name="nextUpdateTime" type="dateTimeNoSpaces" minOccurs="0" maxOccurs="1"/>
    <xs:element name="validTime" type="dateTimeNoSpaces" minOccurs="1" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="tsunamiWave">
  <xs:annotation>
    <xs:documentation>Tsunami Wave</xs:documentation>
    <xs:documentation>Definition: Deterministic tsunami wave characteristics including the height, period and arrival time of a tsunami wave system.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="predictedTsunamiMaximumWaveHeight" type="decimalPointOneRes" minOccurs="1" maxOccurs="1"/>
    <xs:element name="heightLengthUnits" type="heightLengthUnits" minOccurs="1" maxOccurs="1"/>
    <xs:element name="predictedTsunamiWaveArrivalTime" type="dateTimeNoSpaces" minOccurs="1" maxOccurs="1"/>
    <xs:element name="tsunamiWavePeriod" type="nonNegativeIntegerFourDigits1Res" minOccurs="0" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="watchWarning">
  <xs:annotation>
    <xs:documentation>Watch/Warning</xs:documentation>
    <xs:documentation>Definition: Indication of the category, type of watch, warning or advisory that has been issued and the time the watch, warning or advisory begins and ends.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="categoryOfWeatherWarning" type="categoryOfWeatherWarning" minOccurs="1" maxOccurs="1"/>
    <xs:element name="weatherWatchWarningType" type="weatherWatchWarningType" minOccurs="1" maxOccurs="1"/>
    <xs:element name="warningEndTime" type="dateTimeNoSpaces" minOccurs="0" maxOccurs="1"/>
    <xs:element name="warningStartTime" type="dateTimeNoSpaces" minOccurs="1" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="windWarningProbability">
  <xs:annotation>
    <xs:documentation>Wind Warning Probability</xs:documentation>
    <xs:documentation>Definition: Attribute that indicates the probability of wind speeds (gusts and/or surface wind) exceeding a specified warning threshold.</xs:documentation>
  </xs:annotation>

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<xs:sequence>
  <xs:element name="windWarningThreshold" type="windWarningThreshold" minOccurs="1" maxOccurs="1"/>
  <xs:element name="probabilityPercentage" type="percent" minOccurs="1" maxOccurs="1"/>
</xs:sequence>
</xs:complexType>

<xs:complexType name="windWaveDirection">
  <xs:annotation>
    <xs:documentation>Wind Wave Direction</xs:documentation>
    <xs:documentation>Definition: Directional component of wind waves in degrees and cardinal directions.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="azimuthDegreesOfWaveDirection" type="nonNegativeInteger359" minOccurs="1" maxOccurs="1"/>
    <xs:element name="waveDirectionCompassPoint" type="waveDirectionCompassPoint" minOccurs="0" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="windWaveHeight">
  <xs:annotation>
    <xs:documentation>Wind Wave Height</xs:documentation>
    <xs:documentation>Definition: Height components of wind waves vectors.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="categoryOfWaveHeight" type="categoryOfWaveHeight" minOccurs="0" maxOccurs="1"/>
    <xs:element name="heightLengthUnits" type="heightLengthUnits" minOccurs="1" maxOccurs="1"/>
    <xs:element name="waveHeight" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="windWaveHeightChange">
  <xs:annotation>
    <xs:documentation>Wind Wave Height Change</xs:documentation>
    <xs:documentation>Definition: The height change for wind waves over a given time interval.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="changeInWaveHeight" type="changeInWaveHeight" minOccurs="1" maxOccurs="1"/>
    <xs:element name="waveHeightChangeTimeInterval" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="windWavePeriodChange">
  <xs:annotation>
    <xs:documentation>Wind Wave Period Change</xs:documentation>
    <xs:documentation>Definition: The wave period change for wind waves over a given time interval.</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="changeInWavePeriod" type="changeInWavePeriod" minOccurs="1" maxOccurs="1"/>
    <xs:element name="wavePeriodChangeTimeInterval" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
  </xs:sequence>
</xs:complexType>

<! -- ===== -->
<! -- ===== -->

<! -- ===== -->
<! -- Simple Attributes-->
<! -- ===== -->

<xs:simpleType name="beaufortForce">
  <xs:annotation>

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<xs:documentation>Beaufort Force</xs:documentation>
    <xs:documentation>Definition: Wind force scale, originally based on the state of the sea,
expressed in numbers from 0 to 12.</xs:documentation>
    <xs:documentation>Code List - Closed Dictionary</xs:documentation> <!--Ref: 

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<xs:documentation>Storm</xs:documentation>
<xs:documentation>48-55 knots, Beaufort scale wind force 10</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="11">
    <xs:annotation>
        <xs:documentation>Violent Storm</xs:documentation>
        <xs:documentation>56-63 knots, Beaufort scale wind force 11</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="12">
    <xs:annotation>
        <xs:documentation>Hurricane Force</xs:documentation>
        <xs:documentation>64 knots and above, Beaufort scale wind force 12</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="13">
    <xs:annotation>
        <xs:documentation>Calm Wind</xs:documentation>
        <xs:documentation>less than 1 knot, Beaufort scale wind force 0</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="categoryOfConvergentBoundary">
    <xs:annotation>
        <xs:documentation>Category Of Convergent Boundary</xs:documentation>
        <xs:documentation>Definition: The particular type of boundary in which air masses have similar densities.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Intertropical Convergence Zone</xs:documentation>
            </xs:annotation>
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        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Squall Line</xs:documentation>
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        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Trough Line</xs:documentation>
            </xs:annotation>
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        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Trough</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>Shear Line</xs:documentation>
            </xs:annotation>
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        <xs:enumeration value="6">
            <xs:annotation>
                <xs:documentation>Convergence Line</xs:documentation>
            </xs:annotation>
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        <xs:enumeration value="7">
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                <xs:documentation>Monsoon Trough</xs:documentation>
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</xs:simpleType>

```

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</xs:enumeration>
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<xs:simpleType name="categoryOfFront">
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        <xs:documentation>Category Of Front</xs:documentation>
        <xs:documentation>Definition: The specific type of interface or transition zone between air masses of different densities.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
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                <xs:documentation>Cold Front</xs:documentation>
            </xs:annotation>
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        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Warm Front</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Occluded Front</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Quasi-Stationary Front</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>Dry Line</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
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</xs:simpleType>

<xs:simpleType name="categoryOfLow">
    <xs:annotation>
        <xs:documentation>Category Of Low</xs:documentation>
        <xs:documentation>Definition: Specifies the type of non-tropical low pressure system.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
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            <xs:annotation>
                <xs:documentation>Extra-Tropical Cyclone</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Post-Tropical Cyclone</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
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```

```

</xs:enumeration>
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    <xs:annotation>
        <xs:documentation>Category Of Precipitation</xs:documentation>
            <xs:documentation>Definition: Type or physical state of an ensemble of particles consisting of a fall.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Rain</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Freezing Rain</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Hail</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Snow</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>Sleet</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="6">
            <xs:annotation>
                <xs:documentation>Mixed Precipitation</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="7">
            <xs:annotation>
                <xs:documentation>Other/Unknown Precipitation</xs:documentation>
            </xs:annotation>
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    </xs:restriction>
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<xs:simpleType name="categoryOfSurfaceVisibility">
    <xs:annotation>
        <xs:documentation>Category Of Surface Visibility</xs:documentation>
            <xs:documentation>Definition: The categories of horizontal surface visibility as defined by the WMO.</xs:documentation>
        <xs:documentation>Code List - Closed Dictionary</xs:documentation>
    </xs:annotation>
    <xs:appinfo>
        <clsa:SimpleCodeListBinding codeListURI="http://library.wmo.int/pmb_ged/wmo_558_en-v1.pdf"/>
    </xs:appinfo>
    </xs:annotation>
    <xs:restriction base="xs:integer">
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```

```

<xs:annotation>
    <xs:documentation>Very Poor Surface Visibility</xs:documentation>
    <xs:documentation>Less than 0.5 nautical miles</xs:documentation>
</xs:annotation>
</xs:enumeration>
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        <xs:documentation>Poor Surface Visibility</xs:documentation>
        <xs:documentation>0.5 to 2 nautical miles</xs:documentation>
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</xs:enumeration>
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    <xs:annotation>
        <xs:documentation>Moderate Surface Visibility</xs:documentation>
        <xs:documentation>2.1 to 5 nautical miles</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="4">
    <xs:annotation>
        <xs:documentation>Good Surface Visibility</xs:documentation>
        <xs:documentation>Greater than 5 nautical miles</xs:documentation>
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        <xs:documentation>Definition: The category of swell wave heights based on the Douglas Sea Scale. Remark: This standard terminology is equivalent to the Douglas Sea Scale (UK Met National Meteorological Library and Archive Fact sheet 6, version 01). A height exactly equal to one of the values at the ends of the ranges shall be coded in the higher range, e.g. height of 2 metres shall be reported by value 3 (Moderate Swell Heights).</xs:documentation>
        <xs:documentation>Code List - Closed Dictionary</xs:documentation>
    <xs:appinfo>
        <csla:SimpleCodeListBinding codeListURI="https://www.wmo.int/pages/prog/gcos/documents/gruanmanuals/CIMO/CIMO_Guide-7th_Edition-2008.pdf"/>
    </xs:appinfo>
    </xs:annotation>
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                <xs:documentation>0-2 m</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Moderate Swell Heights</xs:documentation>
                <xs:documentation>2-4 m</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Heavy Swell Heights</xs:documentation>
                <xs:documentation>over 4 m</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="categoryOfWaveHeight">
    <xs:annotation>
        <xs:documentation>Category Of Wave Height</xs:documentation>
        <xs:documentation>Definition: The category of wave height based on the Douglas Sea Scale. Note that significant wave height is also known as Total Wave Height which is the mathematical vector</xs:documentation>
    </xs:annotation>

```

addition of swell waves and wind waves. Remark: This standard terminology is equivalent to the Douglas Sea Scale (UK Met National Meteorological Library and Archive Fact sheet 6, version 01). A height exactly equal to one of the values at the ends of the ranges shall be coded in the higher range, e.g. height of 2.5 metres shall be reported by value 6 (Rough Wave Heights).</xs:documentation>

```

<xs:documentation>Code List - Closed Dictionary</xs:documentation>
<xs:appinfo>
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v1-1-2015_en.pdf"/>
</xs:appinfo>
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      <xs:documentation>0 m</xs:documentation>
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  </xs:enumeration>
  <xs:enumeration value="2">
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    </xs:annotation>
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  <xs:enumeration value="4">
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      <xs:documentation>0.5-1.25 m</xs:documentation>
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  </xs:enumeration>
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      <xs:documentation>2.5-4 m</xs:documentation>
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  </xs:enumeration>
  <xs:enumeration value="7">
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      <xs:documentation>4-6 m</xs:documentation>
    </xs:annotation>
  </xs:enumeration>
  <xs:enumeration value="8">
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      <xs:documentation>High Wave Heights</xs:documentation>
      <xs:documentation>6-9 m</xs:documentation>
    </xs:annotation>
  </xs:enumeration>
  <xs:enumeration value="9">
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      <xs:documentation>9-14 m</xs:documentation>
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  <xs:enumeration value="10">
    <xs:annotation>

```

```

        <xs:documentation>Phenomenal Wave Heights</xs:documentation>
        <xs:documentation>over 14 m</xs:documentation>
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</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="categoryOfWeatherWarning">
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            <xs:documentation>Definition: Category of watch, warning, or advisory issued by a local weather authority.</xs:documentation>
    <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
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                <xs:documentation>Near Gale Force Wind</xs:documentation>
            <xs:documentation>28-33 knots inclusive</xs:documentation>
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        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Gale Force Wind</xs:documentation>
                    <xs:documentation>34-47 knots inclusive</xs:documentation>
                </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="3">
                <xs:annotation>
                    <xs:documentation>Storm Force Wind</xs:documentation>
                        <xs:documentation>48-55 knots inclusive</xs:documentation>
                    </xs:annotation>
                </xs:enumeration>
                <xs:enumeration value="4">
                    <xs:annotation>
                        <xs:documentation>Hurricane Force Wind</xs:documentation>
                            <xs:documentation>64 knots or higher</xs:documentation>
                        </xs:annotation>
                    </xs:enumeration>
                    <xs:enumeration value="5">
                        <xs:annotation>
                            <xs:documentation>Tropical Low (SE Indian Ocean to Coral Sea)</xs:documentation>
                        </xs:annotation>
                    </xs:enumeration>
                    <xs:enumeration value="6">
                        <xs:annotation>
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                    </xs:enumeration>
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                            <xs:documentation>Severe Tropical Cyclone (SE Indian Ocean to Coral Sea)</xs:documentation>
                        </xs:annotation>
                    </xs:enumeration>
                    <xs:enumeration value="8">
                        <xs:annotation>
                            <xs:documentation>Tropical Depression (Atlantic/NE Pacific/Central Pacific)</xs:documentation>
                        </xs:annotation>
                    </xs:enumeration>
                    <xs:enumeration value="9">
                        <xs:annotation>
                            <xs:documentation>Tropical Storm (Atlantic/NE Pacific/Central Pacific)</xs:documentation>
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</xs:simpleType>

```

```

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        <xs:documentation>Tropical Storm (NW Pacific)</xs:documentation>
    </xs:annotation>
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<xs:enumeration value="17">
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```

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</xs:enumeration>
<xs:enumeration value="25">
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    </xs:annotation>
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<xs:enumeration value="33">
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</xs:simpleType>

<xs:simpleType name="changeInWaveHeight">
    <xs:annotation>
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        <xs:documentation>Definition: The trend of the difference between wave (swell, wind wave, or significant wave) heights at two time values separated by a time interval.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>

```

```

        <xs:documentation>Building</xs:documentation>
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</xs:enumeration>
<xs:enumeration value="2">
    <xs:annotation>
        <xs:documentation>Subsiding</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="3">
    <xs:annotation>
        <xs:documentation>No Change in Wave Height</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="changeInWavePeriod">
    <xs:annotation>
        <xs:documentation>Change In Wave Period</xs:documentation>
        <xs:documentation>Definition: The trend of the difference between wave period of significant waves, wind waves, or swell waves at two time values separated by a time interval.</xs:documentation>
    <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Increasing Wave Period</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Decreasing Wave Period</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>No Change in Wave Period</xs:documentation>
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        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="changeInWindDirection">
    <xs:annotation>
        <xs:documentation>Change In Wind Direction</xs:documentation>
        <xs:documentation>Definition: Description of how the wind direction has differed between two time values separated by a Time Interval. Remark: Attribute not mandatory if wind is steady.</xs:documentation>
    <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
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                <xs:documentation>Wind Shift</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Veering Wind</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Backing Wind</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">

```

```

<xs:annotation>
    <xs:documentation>No Change in Wind Direction</xs:documentation>
</xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="changeInWindSpeed">
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        <xs:documentation>Definition: The magnitude of the difference between surface wind speed at two time values separated by a time interval.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Increasing Wind Speed</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Decreasing Wind Speed</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>No Change in Wind Speed</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="characteristicOfPressureChange">
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        <xs:documentation>Definition: Characteristic of pressure tendency during the three hours preceding the time value.</xs:documentation>
        <xs:documentation>Code List - Closed Dictionary</xs:documentation>
        <xs:appinfo>
            <clsa:SimpleCodeListBinding codeListURI="http://library.wmo.int/pmb_ged/wmo_306-v1-1-2015_en.pdf"/>
        </xs:appinfo>
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            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
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                <xs:documentation>Increasing, then Steady</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Increasing (Steadily or Unsteadily)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Decreasing or Steady, then Increasing</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>

```

```

        <xs:documentation>Steady</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="6">
    <xs:annotation>
        <xs:documentation>Decreasing, then Increasing</xs:documentation>
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</xs:enumeration>
<xs:enumeration value="7">
    <xs:annotation>
        <xs:documentation>Decreasing, then Steady</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="8">
    <xs:annotation>
        <xs:documentation>Decreasing (Steadily or Unsteadily)</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="9">
    <xs:annotation>
        <xs:documentation>Steady or Increasing, then Decreasing</xs:documentation>
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</xs:enumeration>
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        <xs:documentation>Definition: Terminology used to indicate how much of a geographic area a weather feature is affecting or forecasted to affect a defined geographic area. Remark: Coverage exactly equal to one of the values at the ends of the ranges shall be coded in the higher range, e.g. coverage of 30 percent shall be reported by value 2 (Scattered Coverage).</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
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                <xs:documentation>10-30%</xs:documentation>
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        </xs:enumeration>
        <xs:enumeration value="2">
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                <xs:documentation>Scattered Coverage</xs:documentation>
                <xs:documentation>30-50%</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Widespread Coverage</xs:documentation>
                <xs:documentation>50-99%</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Completed Coverage</xs:documentation>
                <xs:documentation>100%</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>Unknown</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>
```

```

<xs:simpleType name="dateTimeNoSpaces">
<xs:annotation>
    <xs:documentation>Date And Time With No Spaces</xs:documentation>
    <xs:documentation>dateTime format to match S412 encoding guide: YYYYMMDDTHHMMSS</xs:documentation>
</xs:annotation>
<xs:restriction base="xs:string">
    <!--datetime format: Y Y Y Y M M D D T H H M M S S
Ref: http://research.cs.wisc.edu/htcondor/classad/refman/node9.html -->
    <xs:pattern value="[0-9][0-9][0-9][0-9][0-1][0-9][0-3][0-9]T[0-5][0-9][0-5][0-9][0-5][0-9]" />
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="decimalPointFiveRes">
    <xs:annotation>
        <xs:documentation>Decimal Point Five Resolution</xs:documentation>
        <xs:documentation>Decimal number to tenths place, with resolution of 0.5. Minimum value of 0.
Optional number of digits to left of decimal point.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:decimal">
        <xs:pattern value="([1-9])*[0-9].[05]" />
        <xs:minInclusive value="0" />
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="decimalPointOneRes">
    <xs:annotation>
        <xs:documentation>Decimal Point One Resolution</xs:documentation>
        <xs:documentation>Decimal number to tenths place, with resolution of 0.1. Minimum value of 0.
Optional number of digits to left of decimal point.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:decimal">
        <xs:fractionDigits value="1"/>
        <xs:minInclusive value="0"/>
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="decimalPointOneResNeg">
    <xs:annotation>
        <xs:documentation>Decimal Point One Resolution Negative</xs:documentation>
        <xs:documentation>Negative (or zero) decimal number to tenths place, with resolution of 0.1.
Maximum value of 0. Optional number of digits to left of decimal point.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:decimal">
        <xs:fractionDigits value="1" />
        <xs:maxInclusive value="0" />
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="decimalPointOneResOptNeg">
    <xs:annotation>
        <xs:documentation>Decimal Point One Resolution Optional Negative</xs:documentation>
        <xs:documentation>Decimal number to tenths place, with resolution of 0.1, and with optional
negative. Optional number of digits to left of decimal point.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:decimal">
        <xs:fractionDigits value="1" />
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="directionOfExpectedMovement">
    <xs:annotation>
        <xs:documentation>Direction Of Expected Movement</xs:documentation>
        <xs:documentation>Definition: Movement or expected movement of a feature through a forecasted
time period, with reference to one of the sixteen points of a compass.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>

```

```

<xs:restriction base="xs:integer">
    <xs:enumeration value="1">
        <xs:annotation>
            <xs:documentation>North (N)</xs:documentation>
        <xs:documentation>348.75-011.25 degrees</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="2">
        <xs:annotation>
            <xs:documentation>Northnortheast (NNE)</xs:documentation>
        <xs:documentation>011.25-033.75 degrees</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="3">
        <xs:annotation>
            <xs:documentation>Northeast (NE)</xs:documentation>
        <xs:documentation>033.75-056.25 degrees</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="4">
        <xs:annotation>
            <xs:documentation>Eastnortheast (ENE)</xs:documentation>
            <xs:documentation>056.25-078.75 degrees</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="5">
        <xs:annotation>
            <xs:documentation>East (E)</xs:documentation>
            <xs:documentation>078.75-101.25 degrees</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="6">
        <xs:annotation>
            <xs:documentation>Eastsoutheast (ESE)</xs:documentation>
            <xs:documentation>101.25-123.75 degrees</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="7">
        <xs:annotation>
            <xs:documentation>Southeast (SE)</xs:documentation>
            <xs:documentation>123.75-146.25 degrees</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="8">
        <xs:annotation>
            <xs:documentation>Southsoutheast (SSE)</xs:documentation>
            <xs:documentation>146.25-168.75 degrees</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="9">
        <xs:annotation>
            <xs:documentation>South (S)</xs:documentation>
            <xs:documentation>168.75-191.25 degrees</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="10">
        <xs:annotation>
            <xs:documentation>Southsouthwest (SSW)</xs:documentation>
            <xs:documentation>191.25-213.75 degrees</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="11">
        <xs:annotation>
            <xs:documentation>Southwest (SW)</xs:documentation>
            <xs:documentation>213.75-236.25 degrees</xs:documentation>
        </xs:annotation>
    </xs:enumeration>

```

```

<xs:enumeration value="12">
    <xs:annotation>
        <xs:documentation>Westsouthwest (WSW)</xs:documentation>
        <xs:documentation>236.25-258.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="13">
    <xs:annotation>
        <xs:documentation>West (W)</xs:documentation>
        <xs:documentation>258.75-281.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="14">
    <xs:annotation>
        <xs:documentation>Westnorthwest (WNW)</xs:documentation>
        <xs:documentation>281.25-303.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="15">
    <xs:annotation>
        <xs:documentation>Northwest (NW)</xs:documentation>
        <xs:documentation>303.75-326.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="16">
    <xs:annotation>
        <xs:documentation>Northnorthwest (NNW)</xs:documentation>
        <xs:documentation>326.25-348.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="distanceOfUnitMeasurement">
    <xs:annotation>
        <xs:documentation>Distance Of Unit Measurement</xs:documentation>
        <xs:documentation>Definition: A specified amount of a quantity, as of length, by comparison with which any other quantity of the same kind is measured or estimated.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Metres</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Yards</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Kilometers</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Statute Miles</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>Nautical Miles</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="6">
    
```

```

<xs:annotation>
    <xs:documentation>Feet</xs:documentation>
</xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="expectedChangeInIntensity">
    <xs:annotation>
        <xs:documentation>Expected Change In Intensity</xs:documentation>
            <xs:documentation>Definition: Specifies the expected change in intensity of a feature in the
upcoming 24 hours.</xs:documentation>
        <xs:documentation>Code List - Open Dictionary</xs:documentation>
        <xs:appinfo>
            <csla:SimpleCodeListBinding codeListURI="http://library.wmo.int/pmb_ged/wmo_306-
v1-1-2015_en.pdf"/>
        </xs:appinfo>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Much weakening</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Weakening</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>No Change in intensity</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Intensification</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>Strong Intensification</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="6">
            <xs:annotation>
                <xs:documentation>Intensity Not Observed Previously</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="7">
            <xs:annotation>
                <xs:documentation>Undetermined Intensity Change</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="frontalDevelopment">
    <xs:annotation>
        <xs:documentation>Frontal Development</xs:documentation>
            <xs:documentation>Definition: The stage of development in which a front exists at a
particular time.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>

```

```

        <xs:documentation>Front Developing</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="2">
    <xs:annotation>
        <xs:documentation>Front Dissipating</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="frontLevel">
    <xs:annotation>
        <xs:documentation>Front Level</xs:documentation>
        <xs:documentation>Definition: The level from the surface vertically into the atmosphere at which the front exists. Remark: Level above surface is defined by issuing agency.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Surface Front</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Above Surface Front</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="heightLengthUnits">
    <xs:annotation>
        <xs:documentation>Height/Length Units</xs:documentation>
        <xs:documentation>Definition: This attribute encodes the units of measurement for heights and lengths.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Metres</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Feet</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="heightOfCloudBase">
    <xs:annotation>
        <xs:documentation>Height Of Cloud Base</xs:documentation>
        <xs:documentation>Definition: Height above the Earth's surface of the base of the lower cloud layer whose amount exceeds a specific value. Remarks:  
A height exactly equal to one of the values at the ends of the ranges shall be coded in the higher range, e.g. a height of 600 m shall be reported by code figure 6 (600-1000 m).</xs:documentation>
        <xs:documentation>Code List - Closed Dictionary</xs:documentation>
        <xs:appinfo>
            <csla:SimpleCodeListBinding codeListURI="http://library.wmo.int/pmb_ged/wmo_306-v1-1-2015_en.pdf"/>
        </xs:appinfo>
    </xs:annotation>
    <xs:restriction base="xs:integer">

```

```

<xs:enumeration value="1">
    <xs:annotation>
        <xs:documentation>0 to 50m</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="2">
    <xs:annotation>
        <xs:documentation>50 to 100m</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="3">
    <xs:annotation>
        <xs:documentation>100 to 200m</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="4">
    <xs:annotation>
        <xs:documentation>200 to 300m</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="5">
    <xs:annotation>
        <xs:documentation>300 to 600m</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="6">
    <xs:annotation>
        <xs:documentation>600 to 1000m</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="7">
    <xs:annotation>
        <xs:documentation>1000 to 1500m</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="8">
    <xs:annotation>
        <xs:documentation>1500 to 2000m</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="9">
    <xs:annotation>
        <xs:documentation>2000 to 2500m</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="10">
    <xs:annotation>
        <xs:documentation>2500m or more, or no clouds</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="11">
    <xs:annotation>
        <xs:documentation>Height of base of cloud not known or base of clouds at level lower
and tops at a level higher than that of the station</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="icingIntensity">
    <xs:annotation>
        <xs:documentation>Icing Intensity</xs:documentation>
        <xs:documentation>Definition: Rate at which ice accretion occurs, expressed in units of depth
per unit time (WMO-No. 182, I0220). Remark: Icing Intensity exactly equal to one of the values at the
ends of the ranges shall be coded in the higher range, e.g. icing of 1 cm/3hr shall be reported by value
2 (Moderate Icing).</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>

```

```

</xs:annotation>
<xs:restriction base="xs:integer">
    <xs:enumeration value="1">
        <xs:annotation>
            <xs:documentation>Light Icing</xs:documentation>
            <xs:documentation>1 cm/3hr</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="2">
        <xs:annotation>
            <xs:documentation>Moderate Icing</xs:documentation>
            <xs:documentation>1-5 cm/3hr</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="3">
        <xs:annotation>
            <xs:documentation>Severe Icing</xs:documentation>
            <xs:documentation>6-12 cm/3hr</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="4">
        <xs:annotation>
            <xs:documentation>Very Severe Icing</xs:documentation>
            <xs:documentation>> 12 cm/3hr</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="lowerIsobaricLevel">
    <xs:annotation>
        <xs:documentation>Lower Isobaric Level</xs:documentation>
        <xs:documentation>Definition: The lower isobaric level for which thickness is measured. (WMO-No. 182, M0100)</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>1000 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>925 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>850 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>700 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>500 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="6">
            <xs:annotation>
                <xs:documentation>300 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

```

```

<xs:enumeration value="7">
    <xs:annotation>
        <xs:documentation>250 hPa</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="8">
    <xs:annotation>
        <xs:documentation>200 hPa</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="9">
    <xs:annotation>
        <xs:documentation>150 hPa</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="10">
    <xs:annotation>
        <xs:documentation>100 hPa</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="metareaNumber">
    <xs:annotation>
        <xs:documentation>Metarea Number</xs:documentation>
        <xs:documentation>Definition: The internationally accepted division of the oceans and seas into regions where a designated country is responsible for coordinating and transmitting maritime safety weather information.</xs:documentation>
        <xs:documentation>Code List - Closed Dictionary</xs:documentation>
        <xs:appinfo>
            <csla:SimpleCodeListBinding codeListURI="http://weather.gmdss.org/metareas.html"/>
        </xs:appinfo>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Metarea I</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Metarea II</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Metarea III</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Metarea IV</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>Metarea V</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="6">
            <xs:annotation>
                <xs:documentation>Metarea VI</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="7">
            <xs:annotation>

```

```
        <xs:documentation>Metarea VII</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="8">
    <xs:annotation>
        <xs:documentation>Metarea VIII (N)</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="9">
    <xs:annotation>
        <xs:documentation>Metarea VIII (S)</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="10">
    <xs:annotation>
        <xs:documentation>Metarea IX</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="11">
    <xs:annotation>
        <xs:documentation>Metarea X</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="12">
    <xs:annotation>
        <xs:documentation>Metarea XI</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="13">
    <xs:annotation>
        <xs:documentation>Metarea XII</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="14">
    <xs:annotation>
        <xs:documentation>Metarea XIII</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="15">
    <xs:annotation>
        <xs:documentation>Metarea XIV</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="16">
    <xs:annotation>
        <xs:documentation>Metarea XV</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="17">
    <xs:annotation>
        <xs:documentation>Metarea XVI</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="18">
    <xs:annotation>
        <xs:documentation>Metarea XVII</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="19">
    <xs:annotation>
        <xs:documentation>Metarea XVIII</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="20">
    <xs:annotation>
        <xs:documentation>Metarea XIX</xs:documentation>
    </xs:annotation>
</xs:enumeration>
```

```

</xs:enumeration>
<xs:enumeration value="21">
    <xs:annotation>
        <xs:documentation>Metarea XX</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="22">
    <xs:annotation>
        <xs:documentation>Metarea XXI</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="nonNegativeInteger359">
    <xs:annotation>
        <xs:documentation>Non Negative Integer Max 359</xs:documentation>
        <xs:documentation>Three-digit integer value with leading zero(s); values must not be less than 000 or more than 359. e.g. 000, 090, 359.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:nonNegativeInteger"> <!--Ref for using nonNegativeInteger as restriction base: http://www.w3schools.com/xml/schema\_facets.asp-->
        <xs:pattern value="\d{3}" />
        <xs:maxInclusive value="359" />
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="nonNegativeIntegerFourDigits10Res">
    <xs:annotation>
        <xs:documentation>Non Negative Integer Four Digits 10 Resolution</xs:documentation>
        <xs:documentation>Four-digit integer value with leading zero(s). Minimum value of 0, with resolution of 10. E.g. 0010, 0500, 1540.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:nonNegativeInteger">
        <xs:pattern value="\d{3}[0]" />
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="nonNegativeIntegerFourDigits1Res">
    <xs:annotation>
        <xs:documentation>Non Negative Integer Four Digits 1 Resolution</xs:documentation>
        <xs:documentation>Four-digit integer value with leading zero(s). Minimum value of 0, with resolution of 1. E.g. 0125 for one hour and 25 minutes.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:nonNegativeInteger">
        <xs:pattern value="\d{4}" />
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="percent">
    <xs:annotation>
        <xs:documentation>Percent</xs:documentation>
        <xs:documentation>The percent type specifies a percentage from 0 to 100.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:nonNegativeInteger">
        <xs:maxInclusive value="100"/>
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="precipitationRate">
    <xs:annotation>
        <xs:documentation>Precipitation Rate</xs:documentation>
        <xs:documentation>Definition: The rate or intensity of which precipitation is falling or is forecasted to fall.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">

```

```

<xs:enumeration value="1">
    <xs:annotation>
        <xs:documentation>Light Precipitation Rate</xs:documentation>
        <xs:documentation>less than 2.5 mm/hr</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="2">
    <xs:annotation>
        <xs:documentation>Moderate Precipitation Rate</xs:documentation>
        <xs:documentation>2.5-10.0 mm hr</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="3">
    <xs:annotation>
        <xs:documentation>Heavy Precipitation Rate</xs:documentation>
        <xs:documentation>over 10 mm hr</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="4">
    <xs:annotation>
        <xs:documentation>Various or Unknown Precipitation Rate</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="saffirSimpsonCategory">
    <xs:annotation>
        <xs:documentation>Saffir-Simpson Category</xs:documentation>
        <xs:documentation>Definition: The internationally accepted classification for tropical cyclone intensity based on maximum sustained wind speed.</xs:documentation>
        <xs:documentation>Code List - Closed Dictionary</xs:documentation>
        <xs:appinfo>
            <clsa:SimpleCodeListBinding codeListURI="http://www.nws.noaa.gov/directives/sym/pd01006004curr.pdf"/>
        </xs:appinfo>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Category 1</xs:documentation>
                <xs:documentation>64-82 knots</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Category 2</xs:documentation>
                <xs:documentation>83-95 knots</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Category 3</xs:documentation>
                <xs:documentation>96-112 knots</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Category 4</xs:documentation>
                <xs:documentation>113-136 knots</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>Category 5</xs:documentation>
                <xs:documentation>> 137 knots</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

```

```

        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="speedUnits">
    <xs:annotation>
        <xs:documentation>Speed Units</xs:documentation>
        <xs:documentation>Definition: The units for description of speed.</xs:documentation>
        <xs:documentation>Code List - Open Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Metres Per Second (mps)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Kilometers Per Hour (kph)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Miles Per Hour (mph)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Nautical Miles Per Hour (knots)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="status">
    <xs:annotation>
        <xs:documentation>Status</xs:documentation>
        <xs:documentation>Definition: The operational status of the observation platform.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="29">
            <xs:annotation>
                <xs:documentation>Fully Operational</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="30">
            <xs:annotation>
                <xs:documentation>Partially Operational</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="31">
            <xs:annotation>
                <xs:documentation>Drifting</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="32">
            <xs:annotation>
                <xs:documentation>Broken</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="33">
            <xs:annotation>
                <xs:documentation>Offline</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

```

```

<xs:enumeration value="34">
    <xs:annotation>
        <xs:documentation>Discontinued</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="35">
    <xs:annotation>
        <xs:documentation>Manual Observations</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="36">
    <xs:annotation>
        <xs:documentation>Unknown Status</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="string300char">
<xs:annotation>
    <xs:documentation>String limited to 300 characters.</xs:documentation>
</xs:annotation>
<xs:restriction base="xs:string">
    <xs:maxLength value="300"/>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="thunderstormRiskCategory">
    <xs:annotation>
        <xs:documentation>Thunderstorm Risk Category</xs:documentation>
        <xs:documentation>Definition: Risk hierarchy based on the coverage, intensity and meteorological hazards of thunderstorms.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Thunderstorm Risk</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Marginal Thunderstorm Risk</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Slight Thunderstorm Risk</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Enhanced Thunderstorm Risk</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>Moderate Thunderstorm Risk</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="6">
            <xs:annotation>
                <xs:documentation>High Thunderstorm Risk</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="7">
            <xs:annotation>

```

```

        <xs:documentation>None or Unknown Thunderstorm Risk</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="totalCloudCover">
    <xs:annotation>
        <xs:documentation>Total Cloud Cover</xs:documentation>
            <xs:documentation>Definition: The fraction of the sky covered by the clouds of a certain
genus, species, variety, layer, or combination of clouds.</xs:documentation>
            <xs:documentation>Code List - Closed Dictionary</xs:documentation>
        <xs:appinfo>
            <csla:SimpleCodeListBinding codeListURI="http://library.wmo.int/pmb_ged/wmo_306-
v1-1-2015_en.pdf"/>
        </xs:appinfo>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>1 okta</xs:documentation>
                <xs:documentation>1 okta or 1/10 or less, but not zero cloud cover</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>2 oktas</xs:documentation>
                <xs:documentation>2 oktas or 2/10-3/10 cloud cover</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>3 oktas</xs:documentation>
                <xs:documentation>3 oktas or 4/10 cloud cover</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>4 oktas</xs:documentation>
                <xs:documentation>4 oktas or 5/10 cloud cover</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>5 oktas</xs:documentation>
                <xs:documentation>5 oktas or 6/10 cloud cover</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="6">
            <xs:annotation>
                <xs:documentation>6 oktas</xs:documentation>
                <xs:documentation>6 oktas or 7/10-8/10 cloud cover</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="7">
            <xs:annotation>
                <xs:documentation>7 oktas</xs:documentation>
                <xs:documentation>7 oktas or 9/10 cloud cover</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="8">
            <xs:annotation>
                <xs:documentation>8 oktas</xs:documentation>
                <xs:documentation>8 oktas or 10/10 cloud cover</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="9">
    
```

```

<xs:annotation>
    <xs:documentation>Sky obscured</xs:documentation>
    <xs:documentation>Sky obscured by fog and/or other meteorological phenomena</
xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="10">
    <xs:annotation>
        <xs:documentation>Cloud cover is indiscernible</xs:documentation>
        <xs:documentation>Cloud cover is indiscernible for reasons other than fog or other
meteorological phenomena, or observation is not made.</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="11">
    <xs:annotation>
        <xs:documentation>0 oktas</xs:documentation>
        <xs:documentation>0 oktas or zero cloud cover</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="upperIsobaricLevel">
    <xs:annotation>
        <xs:documentation>Upper Isobaric Level</xs:documentation>
        <xs:documentation>Definition: The upper isobaric level for which thickness is measured. (WMO
182, T0820, M0100)</xs:documentation>
    <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>1000 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>925 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>850 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>700 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>500 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="6">
            <xs:annotation>
                <xs:documentation>300 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="7">
            <xs:annotation>
                <xs:documentation>250 hPa</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="8">
            <xs:annotation>

```

```

        <xs:documentation>200 hPa</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="9">
    <xs:annotation>
        <xs:documentation>150 hPa</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="10">
    <xs:annotation>
        <xs:documentation>100 hPa</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="verticalDatum">
    <xs:annotation>
        <xs:documentation>Vertical Datum</xs:documentation>
            <xs:documentation>Definition: Vertical datum used for measuring elevations of points on the earth's surface. It's the datum to which both heights and soundings are referred. Remarks: When the vertical datum is unknown, such as water areas above locks, the value 'local' datum' is used to be used, and further details may be encoded using "INFORM".</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Mean Low Water Springs (MLWS)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Mean Lower Low Water Springs (MLLWS)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Mean Sea Level (MSL)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Lowest Low Water</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>Mean Low Water (MLW)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="6">
            <xs:annotation>
                <xs:documentation>Lowest Low Water Springs</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="7">
            <xs:annotation>
                <xs:documentation>Approximate Mean Low Water Springs</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="8">
            <xs:annotation>
                <xs:documentation>Indian Spring Low Water (ISLW)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="9">

```

```
<xs:annotation>
    <xs:documentation>Low Water Springs</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="10">
    <xs:annotation>
        <xs:documentation>Approximate Lowest Astronomical Tide</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="11">
    <xs:annotation>
        <xs:documentation>Nearly Lowest Low Water</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="12">
    <xs:annotation>
        <xs:documentation>Mean Lower Low Water (MLLW)</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="13">
    <xs:annotation>
        <xs:documentation>Low Water</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="14">
    <xs:annotation>
        <xs:documentation>Approximate Mean Low Water</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="15">
    <xs:annotation>
        <xs:documentation>Approximate Mean Lower Low Water</xs:documentation>
    </xs:annotation>
</xs:enumeration>
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    <xs:annotation>
        <xs:documentation>Mean High Water (MHW)</xs:documentation>
    </xs:annotation>
</xs:enumeration>
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    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="18">
    <xs:annotation>
        <xs:documentation>High Water</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="19">
    <xs:annotation>
        <xs:documentation>Approximate Mean Sea Level</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="20">
    <xs:annotation>
        <xs:documentation>High Water Springs</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="21">
    <xs:annotation>
        <xs:documentation>Mean Higher High Water (MHHW)</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="22">
    <xs:annotation>
        <xs:documentation>Equinoctial Spring Low Water</xs:documentation>
    </xs:annotation>
</xs:enumeration>
```

```

        </xs:annotation>
    </xs:enumeration>
<xs:enumeration value="23">
    <xs:annotation>
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    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="24">
    <xs:annotation>
        <xs:documentation>Local Datum</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="25">
    <xs:annotation>
        <xs:documentation>International Great Lakes Datum 1985 (IGLD1985)</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="26">
    <xs:annotation>
        <xs:documentation>Mean Water Level</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="27">
    <xs:annotation>
        <xs:documentation>Lower Low Water Large Tide (LLWLT)</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="28">
    <xs:annotation>
        <xs:documentation>Higher High Water Large Tide (HHWLT)</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="29">
    <xs:annotation>
        <xs:documentation>Nearly Highest High Water</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="30">
    <xs:annotation>
        <xs:documentation>Highest Astronomical Tide (HAT)</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="waveDirectionCompassPoint">
    <xs:annotation>
        <xs:documentation>Wave Direction, Compass Point</xs:documentation>
        <xs:documentation>Definition: The compass point direction from which any type of wave is
originating from.</xs:documentation>
        <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>North (N)</xs:documentation>
            <xs:documentation>348.75-011.25 degrees</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Northnortheast (NNE)</xs:documentation>
            <xs:documentation>011.25-033.75 degrees</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>

```

```
<xs:documentation>Northeast (NE)</xs:documentation>
<xs:documentation>033.75-056.25 degrees</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="4">
    <xs:annotation>
        <xs:documentation>Eastnortheast (ENE)</xs:documentation>
        <xs:documentation>056.25-078.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="5">
    <xs:annotation>
        <xs:documentation>East (E)</xs:documentation>
        <xs:documentation>078.75-101.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="6">
    <xs:annotation>
        <xs:documentation>Eastsoutheast (ESE)</xs:documentation>
        <xs:documentation>101.25-123.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="7">
    <xs:annotation>
        <xs:documentation>Southeast (SE)</xs:documentation>
        <xs:documentation>123.75-146.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="8">
    <xs:annotation>
        <xs:documentation>Southsoutheast (SSE)</xs:documentation>
        <xs:documentation>146.25-168.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="9">
    <xs:annotation>
        <xs:documentation>South (S)</xs:documentation>
        <xs:documentation>168.78-191.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="10">
    <xs:annotation>
        <xs:documentation>Southsouthwest (SSW)</xs:documentation>
        <xs:documentation>191.25-213.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="11">
    <xs:annotation>
        <xs:documentation>Southwest (SW)</xs:documentation>
        <xs:documentation>213.75-236.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="12">
    <xs:annotation>
        <xs:documentation>Westsouthwest (WSW)</xs:documentation>
        <xs:documentation>236.25-258.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="13">
    <xs:annotation>
        <xs:documentation>West (W)</xs:documentation>
        <xs:documentation>258.75-281.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="14">
    <xs:annotation>
        <xs:documentation>Westnorthwest (WNW)</xs:documentation>
```

```

        <xs:documentation>281.25-303.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="15">
    <xs:annotation>
        <xs:documentation>Northwest (NW)</xs:documentation>
        <xs:documentation>303.75-326.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="16">
    <xs:annotation>
        <xs:documentation>Northnorthwest (NNW)</xs:documentation>
        <xs:documentation>326.25-348.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="weatherObservationSource">
    <xs:annotation>
        <xs:documentation>Weather Observation Source</xs:documentation>
        <xs:documentation>Definition: The type of platform reporting a weather observation.</xs:documentation>
    <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Buoy</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Ship</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Satellite</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Upper Air</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>Land-Based Weather Station</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="6">
            <xs:annotation>
                <xs:documentation>Tide Gauge</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="7">
            <xs:annotation>
                <xs:documentation>Other Platform</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

<xs:simpleType name="weatherWatchWarningType">
    <xs:annotation>
        <xs:documentation>Weather Watch/Warning Type</xs:documentation>

```

```

<xs:documentation>Definition: The classification defining the severity of the watch or
warning.</xs:documentation>
<xs:documentation>Enumeration</xs:documentation>
</xs:annotation>
<xs:restriction base="xs:integer">
    <xs:enumeration value="1">
        <xs:annotation>
            <xs:documentation>Advisory</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="2">
        <xs:annotation>
            <xs:documentation>Watch</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="3">
        <xs:annotation>
            <xs:documentation>Warning</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="windDirectionCompassPoint">
    <xs:annotation>
        <xs:documentation>Wind Direction, Compass Point</xs:documentation>
        <xs:documentation>Definition: An indication, referenced to true direction and expressed in
cardinal directions, of the direction wind is blowing from.</xs:documentation>
    <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>North (N)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Northnortheast (NNE)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Northeast (NE)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Eastnortheast (ENE)</xs:documentation>
                <xs:documentation>056.25-078.75 degrees</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="5">
            <xs:annotation>
                <xs:documentation>East (E)</xs:documentation>
                <xs:documentation>078.75-101.25 degrees</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="6">
            <xs:annotation>
                <xs:documentation>Eastsoutheast (ESE)</xs:documentation>
                <xs:documentation>101.25-123.75 degrees</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

```

```

<xs:enumeration value="7">
    <xs:annotation>
        <xs:documentation>Southeast (SE)</xs:documentation>
        <xs:documentation>123.75-146.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="8">
    <xs:annotation>
        <xs:documentation>Southsoutheast (SSE)</xs:documentation>
        <xs:documentation>146.25-168.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="9">
    <xs:annotation>
        <xs:documentation>South (S)</xs:documentation>
        <xs:documentation>168.78-191.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="10">
    <xs:annotation>
        <xs:documentation>Southsouthwest (SSW)</xs:documentation>
        <xs:documentation>191.25-213.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="11">
    <xs:annotation>
        <xs:documentation>Southwest (SW)</xs:documentation>
        <xs:documentation>213.75-236.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="12">
    <xs:annotation>
        <xs:documentation>Westsouthwest (WSW)</xs:documentation>
        <xs:documentation>236.25-258.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="13">
    <xs:annotation>
        <xs:documentation>West (W)</xs:documentation>
        <xs:documentation>258.75-281.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="14">
    <xs:annotation>
        <xs:documentation>Westnorthwest (WNW)</xs:documentation>
        <xs:documentation>281.25-303.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="15">
    <xs:annotation>
        <xs:documentation>Northwest (NW)</xs:documentation>
        <xs:documentation>303.75-326.25 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
<xs:enumeration value="16">
    <xs:annotation>
        <xs:documentation>Northnorthwest (NNW)</xs:documentation>
        <xs:documentation>326.25-348.75 degrees</xs:documentation>
    </xs:annotation>
</xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="windSpeedRange">
    <xs:annotation>
        <xs:documentation>Wind Speed Range</xs:documentation>
        <xs:documentation>Definition: Wind speed category for a tropical cyclone.</xs:documentation>
    </xs:annotation>

```

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<xs:documentation>Enumeration</xs:documentation>
</xs:annotation>
<xs:restriction base="xs:integer">
    <xs:enumeration value="1">
        <xs:annotation>
            <xs:documentation>34 knots - 63 knots</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="2">
        <xs:annotation>
            <xs:documentation>>= 64 knots</xs:documentation>
        </xs:annotation>
    </xs:enumeration>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="windWarningThreshold">
    <xs:annotation>
        <xs:documentation>Wind Warning Threshold</xs:documentation>
        <xs:documentation>Definition: Value represents the wind warning that has been exceeded or forecasted to be exceeded.</xs:documentation>
    <xs:documentation>Enumeration</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:integer">
        <xs:enumeration value="1">
            <xs:annotation>
                <xs:documentation>Near Gale Force Wind Warning</xs:documentation>
            <xs:documentation>28 to 33 knots (Beaufort scale wind force 7)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="2">
            <xs:annotation>
                <xs:documentation>Gale Force Wind Warning</xs:documentation>
            <xs:documentation>34 to 47 knots (Beaufort scale wind force 8 and 9)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="3">
            <xs:annotation>
                <xs:documentation>Storm Force Wind Warning</xs:documentation>
            <xs:documentation>48 to 55 knots (Beaufort scale wind force 10)</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="4">
            <xs:annotation>
                <xs:documentation>Hurricane Force Wind Warning</xs:documentation>
            <xs:documentation>64 knots or higher</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
    </xs:restriction>
</xs:simpleType>

<!-- ===== -->
<!-- ===== -->

<!-- ===== -->
<!-- types and elements for the dataset definition -->
<!-- ===== -->

<xs:complexType name="DatasetType">
    <xs:annotation>
        <xs:documentation>Dataset element for Weather dataset as "GML document"</xs:documentation>
    </xs:annotation>
    <xs:complexContent>
        <xs:extension base="gml:AbstractFeatureType">
            <xs:sequence>
                <xs:element name="DatasetIdentificationInformation" type="S100:DataSetIdentificationType" minOccurs="0">

```

```

        <xs:annotation>
            <xs:documentation>Dataset identification information</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="DataSetStructureInformation" type="S100:DataSetStructureInformationType"
minOccurs="0">
        <xs:annotation>
            <xs:documentation>Dataset structure information</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:group ref="S100:Geometry" minOccurs="0" maxOccurs="unbounded">
        <xs:annotation>
            <xs:documentation>Allows spatial objects to be located outside feature objects (for
references, and compatibility with ISO 8211 encoding)</xs:documentation>
        </xs:annotation>
    </xs:group>
    <xs:element name="member" minOccurs="0" maxOccurs="unbounded" type="MemberType">
        <xs:annotation>
            <xs:documentation>intended for technical GML 3.2 requirement for making the dataset
a "GML document" and clause 21.3 of the OGC GML standard</xs:documentation>
        </xs:annotation>
    </xs:element>
    </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>

<!-- treatment of S-100 Information types is provisional, because GML does not have the concept, and
they must be modeled as AbstractGML --&gt;
&lt;xs:complexType name="MemberType"&gt;
    &lt;xs:annotation&gt;
        &lt;xs:documentation&gt;dataset member&lt;/xs:documentation&gt;
    &lt;/xs:annotation&gt;
    &lt;xs:complexContent&gt;
        &lt;xs:extension base="gml:AbstractFeatureMemberType"&gt;
            &lt;xs:sequence&gt;
                &lt;xs:element ref="gml:AbstractFeature"/&gt;
            &lt;/xs:sequence&gt;
            &lt;xs:attributeGroup ref="gml:AssociationAttributeGroup"/&gt;
        &lt;/xs:extension&gt;
    &lt;/xs:complexContent&gt;
&lt;/xs:complexType&gt;

&lt;xs:element name="DataSet" type="DatasetType"/&gt;
&lt;! -- ===== --&gt;
&lt;! -- ===== --&gt;

&lt;/xs:schema&gt;
</pre>

```